Computer Horizons

Book 5

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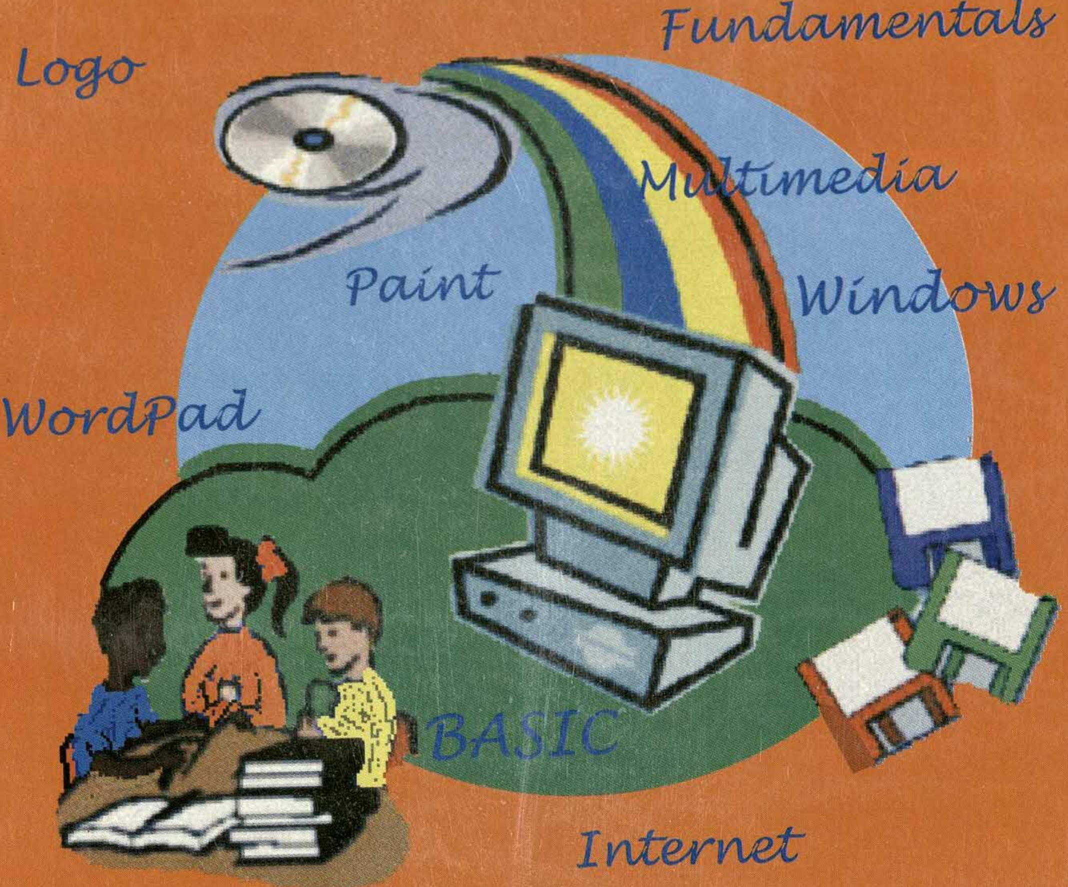

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ACES Infotech Pvt. Ltd.

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Computer Horizons

Book-5

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PREFACE

The subject of computers is approached with feelings of excitement, awe, fascination and intimidation. In business, industry and scientific research the computer is an essential tool, and as time goes by, they have an increasingly familiar place in everybody's lives; at home, in schools and at work.

This book deals in a straight forward way with Computer Fundamentals, Working with LOGO, Introduction to BASIC Programming, Windows Operating System, Working with PAINT and WordPad and also familiarizing young minds with aspects of Internet.

Although, this book is meant for pupils for class V, as a follow up of the text written for junior classes, it could also be treated as an independent text, and general readers will also find it useful.

Happy Computing!

Subhashish Addy

First Edition, 2001

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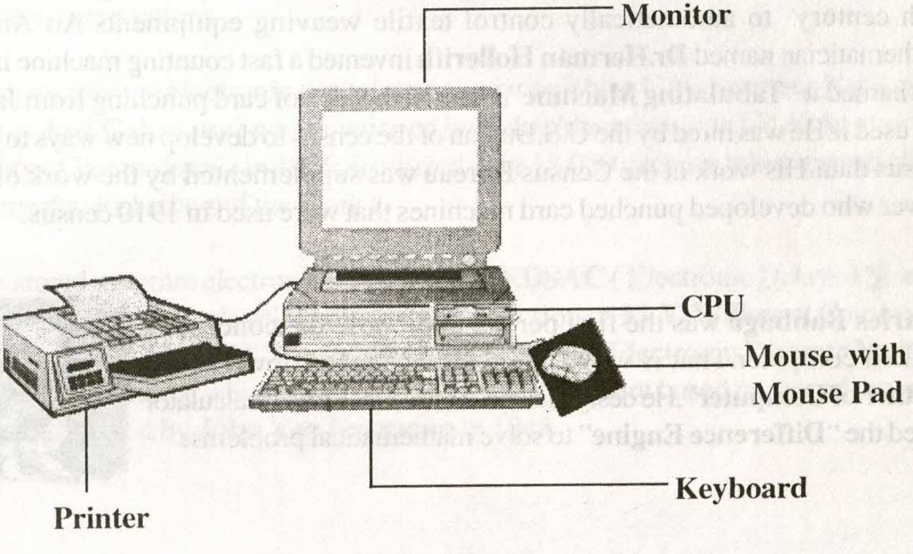
Chapter : 1
Computer Fundamental

We will learn about

- **History of computers**
- **Data and Information**
- **What goes on inside a Computer System**
- **Knowing about various input devices**
- **Knowing about various output devices**
- **Familiarising with some important peripherals**
- **Application of computers in various areas**
- **Software Packages**

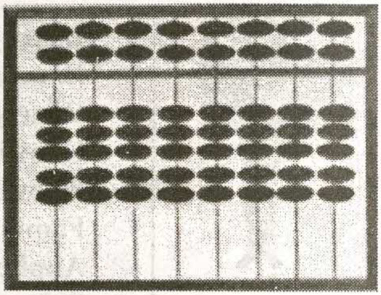
1.1 History of computers



A computer is an electronic device that has the ability to accept data, store them execute a series of instructions (Program), perform mathematical, logical operations on data given by the user and give the information in the form of an output.The output may be made available either on the computer screen, or can be printed on a paper.

In the earlier days human beings used fingers, stones, sticks (for counting) as calculating devices.

They also used knots on a string, scratches on a rock, or notches in a stick as record keeping device.



ABACUS was the earliest form of manual calculating device.It was invented in China presumably over 2000 years ago. Then **Blaise Pascal** of France and **Gottfried Von Leibanitz** had invented adding machine and the calculating device respectively for performing arithmatic operations in the 17th century.

The development of electro-mechanical machines for the automatic data processing recorded by holes, punched in paper cards was another major invention in machine computation.Punched cards were developed in France by **Joseph Jacquard** during the 18th century to automatically control textile weaving equipments.An American mathematician named **Dr.Herman Hollerith** invented a fast counting machine in 1880s and named it "**Tabulating Machine**".He took the idea of card punching from Jacquard and used it.He was hired by the U.S.Bureau of the census to develop new ways to process census data.His work at the Census Bureau was supplemented by the work of James Power who developed punched card machines that were used in 1910 census.

Charles Babbage was the first person to propose the concept of modern computer.That is why Charles Babbage is known as the "**Father of Computer**".He designed and built a mechanical calculator called the "**Difference Engine**" to solve mathematical problems.

In the year of 1833, this English Mathematician developed **"Analytical Engine"**, a mechanical computing machine that could accept punched card input, automatically perform any arithmetic operation in any sequence under the direction of a mathematically stored program of instructions and produce either punched card or printed output.

Babbage has designed the world's first general purpose stored program digital computer, but his ideas were too advanced for the technology of his time. Many of Babbage's ideas were recorded and analyzed by **Lady Augusta Ada Byron**, countess of Lovelace, daughter of Lord Byron, the famous English poet. She is the first lady programmer and she developed the programming language **Ada.**

Towards the late 1930's **Howard Aiken** of the Harvard University in the USA along with the engineers at IBM made a large-scale electro-mechanical digital computer in 1941 and named it **Harvard Mark I**. It used many of the concepts of Charles Babbage.

The first working model of an electronic digital computer was built by **John Afansoft** of IOWA State University in 1942. This model used vacuum tubes instead of electrical relays to carry out computations.

The first operational electronic digital computer, the **ENIAC** (Electronic Numerical Integrator And Calculator) was developed by **John Mauchty** and **J.P. Eckert** of the University of Pennsylvania in 1946. It utilized over 18,000 vacuum tubes instead of the electro-mechanical relays of the Mark I.

The first stored program electronic computer was **EDSAC** (Electronic Delayed Storage Automatic Computers), developed under the direction of **M.V. Wilkes** at Cambridge University, England at 1949. The EDSAC and EDVAC (Electronic Discrete Variable Automatic Computers), which were completed in 1952, were based on stored program concepts introduced by **John Von Neumann** in 1945.

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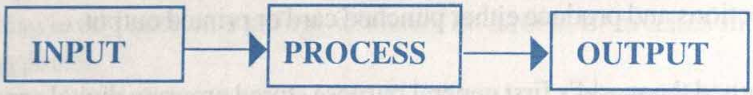
1.2 Data and Information

There are three major activities in the processing of any data.

i. INPUT ii. PROCESS iii. OUTPUT



- Whatever we give to the computer or feed into the computer as data or instructions is known as **INPUT**.
- The series of changes or analysis that the computer undertakes on the data fed to it ,is called the **PROCESS**.
- The result of the process given to the user by the computer in the form of a meaningful information, is called **OUTPUT**.

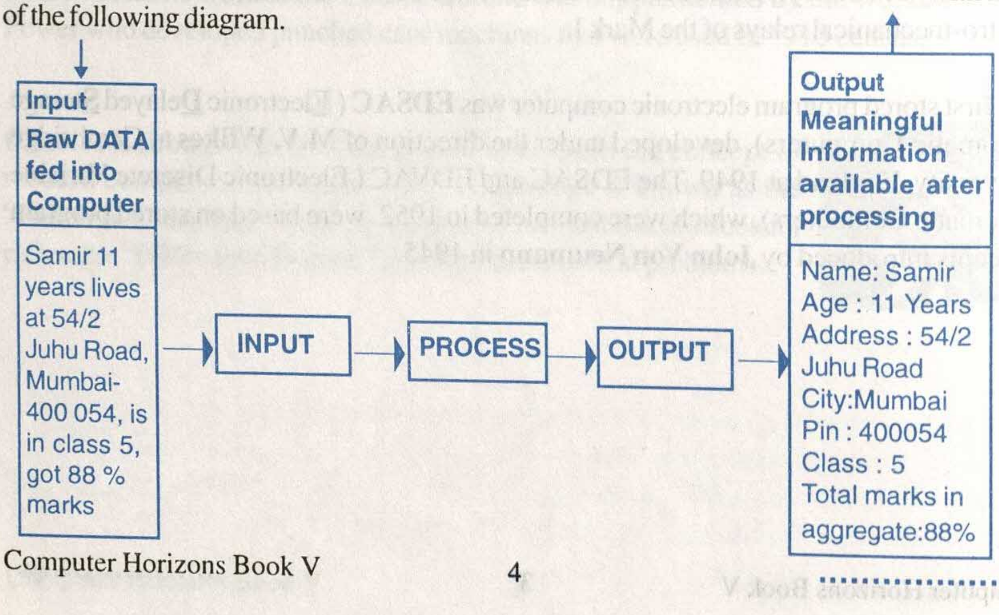
What do we mean by the word **"DATA"** ?

The English word "DATA" is the plural of the word "DATUM", which means fact.So, we can say DATA refers to facts. The basic facts which require to be processed or changed to meaningful result or output is called DATA.DATA can be considered as the raw material for obtaining information.

What do we mean by the word **"INFORMATION"**?

We can refer to information , or meaningful information to be more specific, as a collection of data in an organized manner.When the data is properly arranged it is called organized data.

You can easily understand the difference between DATA and INFORMATION with help of the following diagram.


Input
Raw DATA fed into Computer
Samir 11 years lives at 54/2 Juhu Road, Mumbai-400 054, is in class 5, got 88 % marks
INPUT
PROCESS
OUTPUT
Output
Meaningful Information available after processing
Name: Samir
Age : 11 Years
Address : 54/2 Juhu Road
City:Mumbai
Pin : 400054
Class : 5
Total marks in aggregate:88%

1.3 What goes on inside a Computer System

A basic computer system comprises of Input Devices, Output devices, a Central Processing Unit (CPU), Primary memory and Secondary memory.

The input devices of a computer include the keyboard, mouse, optical scanner, joystick and so on. They convert data into electronic form for input to the computer system.

The output devices of a computer system includes Video Display Unit (Monitors), printers, speakers etc. They receive information from the inside of a computer.The function of the output device is to convert processed data (information) from electronic pulses into a form that is intelligible to human beings or into a machine readable form.For example, output devices such as printers produce printed reports, video terminals produce visual displays and audio response units produce audible sounds and speeches as output.Computers can automatically control various types of output devices.

The processing function of a computer system is performed by the Central Processing Unit , which is the the heart of the computer system. This unit accomplishes the processing of data and controls the other parts of the system. The CPU consists of three sub-units :

(i) Arithmetic Logic Unit
(ii) Control Unit.
(iii) Memory Unit.

The Arithmetic Logic Unit

In this unit , all calculations and comparisons are made to arrive at an appropriate decision. By comparing we mean whether the value 75 is greater than the value 10 or whether the value 20 is less than the value 35 and so on and so forth.

The Control Unit

The control unit of the CPU is the controlling component of a computer system. The control unit acts like a guide to ensure that every job is done according to given instructions.It has a number of functions :

- ☺ The control unit obtains instructions from the primary storage unit.
- ☺ After interpreting the instructions, the control unit transmits directions to the ALU to perform the required data processing operations by transfering the required data to ALU.

➜

- It controls the processess within the ALU and directs the result to be stored in the memory.
- Finally, it controls the transfer of result from memory to output device to be given to the user as OUTPUT.

Memory

We remember words, faces, names or the lessons we read, because we have a memory. A computer also has a memory in which the data and instructions given by the user, to the computer are stored. The memory also stores the results of the process before sending to the output device.

The computer can store both data and instructions internally, in its memory. The storage function of a computer system takes place in the primary storage unit of the CPU and in the secondary storage devices such as Hard Disk Drive, Tape Drive and CD ROM. These devices store data and program instructions needed for computer processing. The secondary memory greatly increases the storage capacity of a computer system.However,the contents of such secondary storage devices can not be processed without first being brought into the primary storage unit. So the external storage devices play supporting role to the primary storage unit of a computer system.

The Primary Memory is located inside the CPU. Primary Memory is categorised into two parts.

(i) RAM (RANDOM ACCESS MEMORY)
(ii) ROM (READ ONLY MEMORY)

RAM or Random Access Memory performs three tasks:

- It holds data for processing
- It holds instructions (the programs) for processing the data.
- It holds the processed data.

There are two important facts that we must know about the RAM. These are

- The RAM is said to be volatile since its contents are lost when power is turned off which means its contents are temporary.
- Its capacities vary in different computers.

ROM :ROM is permanent and cannot be changed.It remains permanently in the computer, even when the computer is switched off. ROM stores programs,developed by the manufacturer, that tell the computer how to control its various parts and how to process data.

Memory (RAM) size and its relation with Computer Processing

When a computer processes any information it uses different software programs. Each of these programs or applications requires a certain amount of memory or RAM in order to run it properly.How fast a computer can solve problems also partly depends on the size of the temporary memory present in RAM.

The higher the capacity of RAM the faster the computer is.The size of RAM present may be 4MB, 8MB, 16MB, 64MB, 128MB, 256MB etc. or multiples of it depending on how much memory a computer can support.

The smallest unit of memory is called a **Byte**. Say, each of the characters 5, a , & etc may be represented by an **Byte**.When there are 1024 characters together they make **1 KiloByte(KB)**. When there are 1,048,567 characters they form **1 MegaByte (MB)**.

However conventionlly we refer to 1 KB as 1000 Bytes and 1 MB as 1000 KiloBytes.

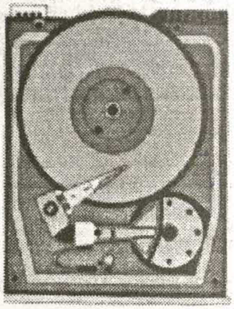
Secondary Memory or Storage Device:

Suppose, you have typed an essay about the Indian cricket history into the computer through word processing software. It goes into the primary memory. Once the computer is switched off, your essay is lost for ever. The next time you want to use and modify the same essay, you will have to type it again. This is waste of time and effort.

Therefore to store the information for later use, secondary memory device is required. A Secondary memory device stores information parmanently.

The various secondary storage devices available are :
Floppy Disk, Hard Disk Drive, CD-ROM etc.

Hard Disk

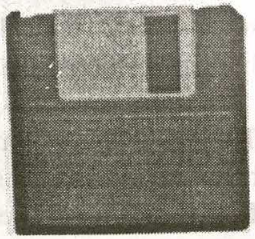


A Hard Disk is a permanently fitted secondary storage device.It can store large volume of data. The storage capacity of a Hard Disk is measured by a unit called **Byte.**

There are several hard disk available depending upon the storage capacity such as 650 MB (MegaByte), 1.2 GB (GigaByte), 2.1 GB, 10 GB, 20 GB, 40 GB etc.

Floppy Disk :

The floppy disk is also a storage device and unlike the hard disk drive it is not fitted permanently inside the Computer. It has to be inserted in Floppy Disk Drive to work on it.



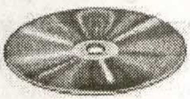
It's storage capacity is quite less as compared to the Hard Disk

The size of floppy disk more popular today is 3½" having a storage capacity of 1.44 MB (MegaByte).

Initially 5¼" floppy disks were also prevalent having a capacity of 360 KB or 1.2 MB.

Although floppy disks do not hold as much information as a typical hard drive, these disks are portable and the information on the floppy disk can be carried to different places.

CD - ROM :



The CD-ROM is another storage device which can be attached to a computer. CD- ROM stands for **C**ompact **D**isc **R**ead **O**nly **M**emory.To read the program or data stored on a CD-ROM it has to be inserted in the CD-ROM drive.

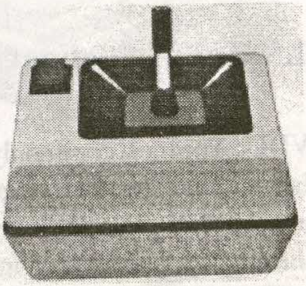
Like a floppy disk drive, a CD ROM drive is able to read data and programs that are stored on Compact Disks (CDs) . But unlike floppy disk which can be both read or written on, most CDs can only be read . The advantage of CDs is that they can only hold a great deal of data. (about 650 MB or more). Complete Encylopedias can be stored on these discs. They can also hold sound , graphics,animation in the form of data . To write on CD's you require a different device called a CD writer and Read Write Compact Discs (CD –RW)

1.4 Knowing about various input devices

Keyboard :

Keyboard is the most commonly used input device for all kinds of computers from mainframes to PC. The device resembles a typewriter.There are several keys on the keyboard which consists of letters, digits and special symbols.Whatever you press on the keyboard , it gets fed into the computer.There are different types of keyboard available such as 104 keyboard, 105 keyboard ,118 keyboard depending on number of keys on the keyboard.

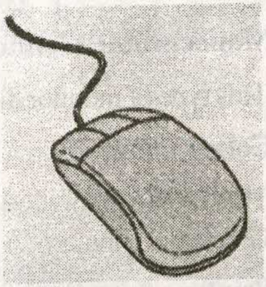
Joysticks :



Joysticks are most commonly used input device to play games on the computer.Joy stick is a stick mounted on a spherical ball which moves in a socket. The stick can be moved left or right, forward or backward.With the help of joy-stick you can control figures on the screen such as animals, guns, planes, make them move forward or backward, up or down. There is also a push button on the joy-stick, usually called 'fire-button'.

Mouse :

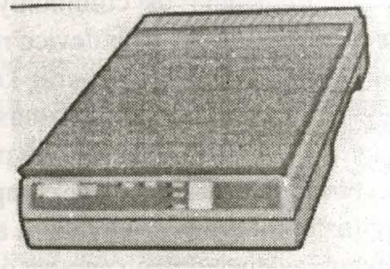
Mouse is a specialized input device that can create movement of cursor on the screen. It is called a mouse as it looks like one.The mouse is specially used to handle the windows operating system.With the help of mouse, we can create pictures or quickly move the words anywhere on the screen.



It resembles the body of a mouse with a round ball (feet) underneath resembling its feet and generally two depression -buttons (two eyes) on the top. The mouse is attached to the computer by a cable which resembles the tail.

The mouse moves on along a pad known as "mouse-pad". As you slide the mouse on the mouse-pad, the movement of the ball inside the mouse results in movement of the cursor (blinking line) on the screen.The cursor may be quickly moved to any position on the screen by moving the mouse.The buttons as we already mentioned are used for specfic jobs.

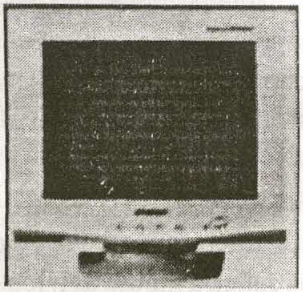
Scanner :



Another useful input device is the scanner. If you place a photograph or a page of text under the scanner , it will send the image of this information into the computer. The photograph or the writing will be displayed in ditto, on to the computer screen .Since the picture and writing are on the screen they can be modified through special software, saved or even printed by a printer. Some scanners are used for scanning black and white pictures while others can be used with colour pictures.

With the help of special software a scanner converts an optical image into a digital format.

1.5 Knowing about the various output devices



VDU : The most commonly used output device for the computer is the VDU. The full form of VDU is Visual Display Unit.These are also called monitors and looks like TV screen and display the output in the form of information.The output so obtained is called a **"soft-copy"** and the device producing such a soft-copy is called a **"soft-copy terminal"**.

Monochrome Monitor :

This type of monitor displays the pictures in different shades of Black and White.

Colour monitor :

The color monitor displays the picture using the combination of three colours RGB i.e.Red, Green and Blue.

Printer : Suppose , you want to print the matter that is displayed on the screen. We use the printer to do this. This type of output is called **"Hard Copy"** since you can store it physically and keep it for reference in your files.

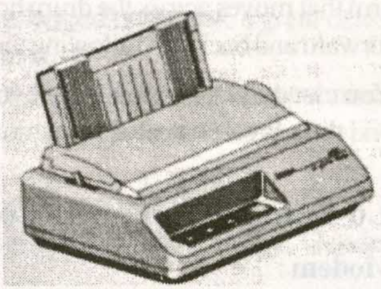
There are several types of printers available depending upon various speed and printing quality. The quality of Printouts are measured in Dots Per square Inch (DPI). The more the number of dots in a square inch, the better the quality of the print out.

Generally, three types of printers are prevalent

- √ Dot Matrix Printer
- √ Ink Jet Printer
- √ Laser Printer

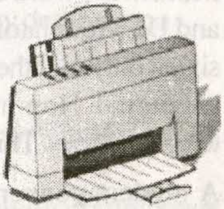
Dot Matrix Printer :

In this type of printer an inked ribbon runs between the paper and Print head. The Print head moves across the paper and goes on printing the information. When it completes printing one line completely, the paper feed motor turns the plate. As a result, the paper turns one line up. These printers are also known as **Impact printer.** Although these printers are very widely used , they do not give high quality printouts. The print head has several pins (9 pins, 24 pins etc.). They strike the ribbon several times per second and prints dots on paper which ultimately takes the shape of various characters.



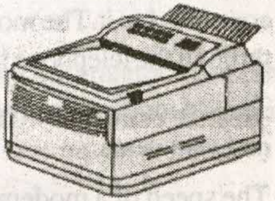
Ink Jet Printer

An ink jet printer prepares the print out by spraying sheans of ink through tiny holes in the print head. The quality of printouts is very satisfactory in these printers.



Laser Printer

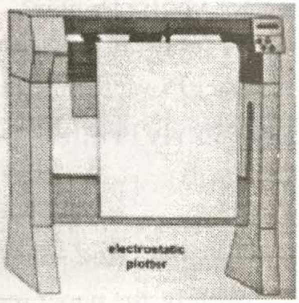
With this type of printer we get the best quality printout at a very high speed.It resembles a photo copier in its working. This type of printer is gernerally used for publishing jobs.



Plotter

A plotter is an output device which is used to generate graphic outputs.It can also output numbers and alphabet. It is mainly used to generate designs required by engnieers, medical reports, such as ECG required by doctors, bar graph and pie charts required by finance departments and so on.

There are many kinds of plotters available and their cost varies with the type and quality of print output they produce.Less costly plotters produce black on white, that is single colour output. More costly ones produce color pictures using four or more pens. These plotters are known as flat bed plotters.



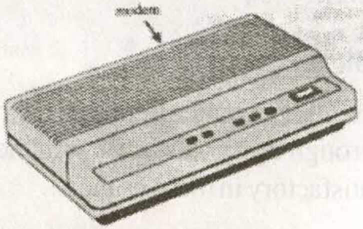
The other types of plotters are drum plotters which have a single arm that moves across the drum horizontally. It moves the paper forward and backward allowing the pen to draw in any direction.

You can draw a diagonal line by moving the pen horizontally and the page vertically.Drum plotters are costlier but produce better output.

1.6 Familiarising with some important peripherals

Modem :

With the help of this electronice device we can exchange information between two computers over telephone lines.



Modem is a word coined from two words **MO**dulator and **DEM**odulator. Telephone lines can send anolog signal only. But the signals produced from a computer are digital. How are the digital signals sent through telephone lines. This can be achieved using the modem.

A modem converts the digital signals into analog signals.This process is known as **modulation.**The converted signals is transmitted through telephone lines to another computer. The receiving computer should also have a modem connected to it.The modem at the receiving end will convert the analog signals received through the telephone lines to digital signals. This process is known as **demodulation**.

Thus, a modem does both the conversion i.e. it converts analog signals to digital signals and vice versa.

The speed of a modem is measured by a unit called BPS (Bits Per Second).

The process of sending and receiving data in computers through the modem is respectively known as **uploading** and **downloading**.

1.7 Application of computers in various areas

We can use the computer in various areas for performing specific job.
Now, we will find out about some application of computers around us.

(1) Railways :

Railways depend heavily on Computerisation which has helped the people a great deal.
The Computerised Railway Reservation System helps us to

(i) Get information about the availlibility of reservation to any distance of your choice. For example : You can book a ticket for travelling from New Delhi to Mumbai staying at Kolkata.

(ii) Avail of Computerised ticket mentioning your personal details like age, Gender, Destination details, Train Timings etc.

(iii) Make Cancellation from any of the Reservation Centres.

(iv) Find the latest information about earliest available booking to any destination.

2. Banking System :

Most of the banks in today's world has transformed into computerised system of Banking.

Banks are one of the earlier establishments which started relying heavily in computers. slowly and steadily. In most cases, the computers are connected through wide area network system.
The computers in bank are used for the following purposes
On line Accounting Syetem where you can have Online Accounting Information. You can know the amount of money you have in your bank just by metioning your Account Number to the computer.

Transactions of money, either in cash or cheques can be done within seconds through Computerised Accounting System.

Certain banks also have ATM facility.The full form of ATM is Automatic Teller Machines.It is popularly known as "All Time money or Any Time Monry". Suppose, you have gone out for a holiday with your parent. But , during the tour sudden ly your father feels he needs some money. If your father has a ATM Card facility, your father just has to go to any branch of his bank, put the ATM card in the ATM device, and take out the required money.

Thus even though your father's bank account may be in Kolkata, he can draw money from any branch of his bank at Lucknow and this transaction gets automatically updated in kolkata.

(4) **Library** : Computers are also used in large libraries. In large libraries, the books are labelled with book-code, say computer books are labelled as com1,com2,com3 chemistry books as chem1, chem2, chem3 etc.Now say,you want to borrow a book from the library. You have to go to the library and ask the librarian for the requisite book at the counter. The library personel has to enter only the due date of returning the book, book-code for corresponding book.Once this is done, all the information is processed and stored in the computer automatically. The computer will display information regarding the book when required. The librarian then directs the helper to collect the book from the appropriate shelf.

(5) **Defence** : Computers are very useful in defence services. All modern weapons and missiles are fully dependent on computers.

(6) **Hospitals** : In Hospitals, specials computers are used with advanced equipments to observe the condition of patients and store all the necessary information.

Computers are also used in surgery especially involving any part of body.

(7) **Education :** You must have seen the different educational CDs for different subjects. So, we can also say, computer is essential in education to enrich the learning process. This form of teaching has been used successfully to supplement the formal teaching methods.The program in CDs can be used by many students, thus reducing the burden on the teachers to spend time with individual students. Educational CDs are designed to test for particular skills and knowledge.

We can also visit different educational sites for every information about any subject through Internet facility.

1.8 Software Packages

With the help of computer language we can communicate with the computer.There are different types of languages in the computer world to create different types of computer programs. Some computer programs are developed to carry out specific task. Such ready-made programs are called software packages.

There are several ready-made packages available for the user such as :

- Word Processing packages
- Spreadsheet Packages
- DBMS package.
- Desktop publishing packages.
- Conputer -Aided Design packages.
- Computer Anti Virus packages.
- Computer Games package.

Now we will discuss about some important packages.

Word Processing :

Word Processing application are used to efficiently produce professional looking documents such as letters,reports, story books, essays, legal documents etc.

There are several types of Word Processing packages available for the users. In the earlier days while DOS was more prevalent as an operating system "WORDSTAR" had become a very popular wordprocessing package; whereas under Windows operating System "MS Word" has become a very popular package.

Almost all Word Processing Packages are available with the following facilities:

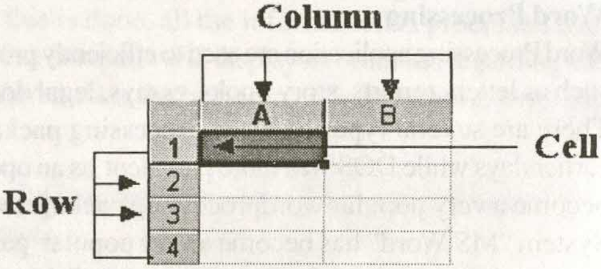
- You can edit a part or an entire document. Editing implies addition, deletion, moving of a character or word or line within a text etc.
- You can Underline, Italise or Bold face a complete text or part of a text whenever required.
- You can choose the type of font of your lettering i.e. you can choose amongst various options available say, Times New Roman, Courier, Arial and numerous others available in the Font Menu.
- You can align the text to the left, right, centre or justify whenever required.
- You can set left and right margins as required.
- You can indent Paragraphs.
- You can merge several addresses with one letter. This facility is known as Mail Merging.
- You can print part or whole of text as desired by user.
- You can also increase or decrease the point size as per the requirement.

Spreadsheet

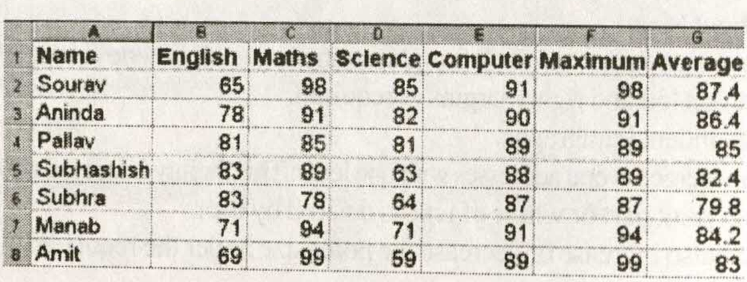
A Spreadsheet is a computer software application that helps us to analyse numerical data.Spreadsheets can be used to add, subtract,mulltiply and divide numbers. We can use formulas and special functions on a spreadsheet to perform simple and complex financial and mathematical computations.We can also make graphs to compare the numeric data visually.

A Spreadsheet program uses a worksheet to organise data.A worksheet is made up of Columns and Rows.Rows go across from left to right, while columns go up and down.The box formed when a column and row intersects is called a CELL. Thus a spreadsheet has numerous cells.Each of these cells has an address .Let us find out the way to find the address of a cell.

Each column in a spreadsheet has a letter at the top.The first column is A.The second column is B and so on.Each row has its own number at the left side of the spreadsheet.The numbers go down in order The first row is row 1,the second row is row 2 and so on.The cell address in the worksheet indicate which cell we we working on.We just now saw that columns are lettered and rows are numbered.The cell address is made up of the column letter and the row number put together.Cell addresses look like A4, B19, C99, D100 etc.



We can enter both numeric and non-numeric data in a cell. When we enter a numeric data, on which calculations can be performed it is known as a **"Value"** whereas when we enter a non-numeric data on which we cannot we cannot perform any mathematical calculation it is termed as a **"Label"**. For example, the subject names of a Marksheet are labels and the marks scored are values.



	A	B	C	D	E	F	G
1	Name	English	Maths	Science	Computer	Maximum	Average
2	Sourav	65	98	85	91	98	87.4
3	Aninda	78	91	82	90	91	86.4
4	Pallav	81	85	81	89	89	85
5	Subhashish	83	89	63	88	89	82.4
6	Subhra	83	78	64	87	87	79.8
7	Manab	71	94	71	91	94	84.2
8	Amit	69	99	59	89	99	83

The main advantage of spreadsheet is that it can be used to solve problems that involve lots of calculation.

Spreadsheet are used for the following purpose :

(i) For data organisation
(ii) For performing Calculations
(iii) For providing visual (graphical) representations of data.
(iv) For viewing and analysing data.
(v) For helping to make decisions based on figures (data).

You can use spreadsheet in the following :

(i) Preparing a scoreboard for a quiz or any game.
(ii) Finding the Average Temperature, Maximum and Minimum Temparature in various cities of the country in a specific day.
(iii) Finding the maximum marks, average marks of the different students in a class as shown in the given example

To perform calculations, lot of function are available in built within a worksheet. Some of the functions which you have already learnt in your mathematical lesson.

SUM	gives the total value after adding the selected number of numeric data.
AVERAGE	gives the average of selected number of numeric data.
PRODUCT	gives the multiplication value of selected number of numeric data etc.
MAXIMUM	gives the maximum value from the selected number of numeric data.

Instead of taking the help of these functions you can also write down the formula on your own as per your requirement.

An advantage of spreadsheet lies in the fact that if you make a modification to a data, all calculations evolving from the modified data are immediately modified.

Original Data			**Modified Data**		
Num1	**Num2**	**Product**	**Num1**	**Num2**	**Product**
2	1	2	3	1	3
2	2	4	3	2	6
2	3	6	3	3	9
2	4	8	3	4	12
2	5	10	3	5	15

Automatically generated

For example, say you are writing 2's Table, in case you want to change your mind and want to write the table of 3 the appropriate product value will automatically be generated. Another advantage of spreadsheets lies in the fact that the numeric values may be presented in the form of graphs in a spreadsheet. Various types of graphs such as line, bar and pie chart can be prepared very easily in spreadsheet.

What is a Database Management System?

A Database Management System (DMBS) is like a computerized filing cabinet. It can store, retrieve (get back), edit, view and delete information. It stores information that can be organized as a set of records, where each record consists of several fields of information. Databases are used in homes and offices to provide information. Some of the most frequently used databases are:

1. Bank Account Pass book
2. Ledgers
3. Telephone Directory
4. Students details
5. Library catalogue

Suppose we have information regarding the Name, Age, Class, Students availing School Bus Facility, you can store them as shown below:

Name	Age	Class	Availing School Bus
Rajiv	10	V	Y
Rakesh	11	VI	Y
Amit	11	V	N
Suman	10	VI	Y

In the above example, each entity like Name, Age, Class, Availing school Bus option is called a **Field**.

Field Name

Name

Age

Class

Availing school Bus

In this case a group of fields of a particular person ,forms a **Record**. and many such similar types of records are stored in a file which is termed as **a Database**.

For example, **Rajiv 10 V Y** makes a record.

In a database, all records should have the same number of fields organized in the same order.

Some of the functions of a Database Management System are :

1. To Create a database by defining the fields, their data types and length of data it will contain.
2. To input, view, delete the data in the database.
3. To sort data on particular fields.
4. To select or filter one or more records according to a given condition.
5. To print the data from the database.

Some of the most popularly used **DBMS** use menus. They work by displaying actions in menus that are chosen by the user for performing a particular task. Some other DBMS are command driven. The user needs to enter the commands just like we give to the operating system in order to do a particular task.

The most frequently used DBMS are dBase, FoxPro, Paradox, MS-Access, Oracle, Sybase, Ingres etc.

Chapter : 2
Working with LOGO

We will learn about

- ☺ **Introduction**
- ☺ **The Turtle**
- ☺ **Learning various commands of LOGO**
- ☺ **Repeat Command**
- ☺ **Drawing Polygons**
- ☺ **Learning to draw Circles**
- ☺ **Arithmetic Operations in LOGO**
- ☺ **Printing Messages**
- ☺ **Procedures**
- ☺ **Editing,Storing,Erasing and Recalling**
- ☺ **LOGO for Windows**
- ☺ **SET primitives in LOGO for Windows**

2.1 Introduction

Logo is one of the simple languages developed primarily for small children. Logo was-developed in 1967 at the MASSACHUSETTES INSTITUTE OF TECHNOLOGY (MIT), USA by a group of computer people headed by an expert Dr. Seymour Papert. The words come from the Greek word LOGOS which means elements of reasoning. With the help of LOGO you can do the following tasks:

- ☺ Draw very simple / complicated and attractive pictures, and patterns.
- ☺ Solve simple mathematical problems.
- ☺ Write simple short text messages.

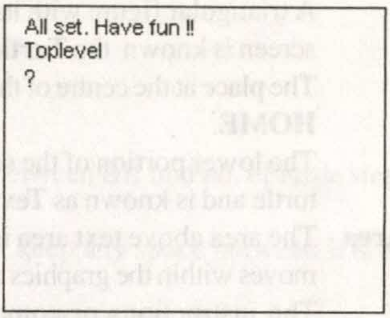
In a computer language the instructions to the computer are in the form of word or words that are called commands. In the LOGO software these commands are known as **Primitives**. LOGO is a language usually available in the form of software.

Before we start working with logo, we have to first know and understand the important commands – primitives in logo.

We can draw pictures in Logo for Windows also.

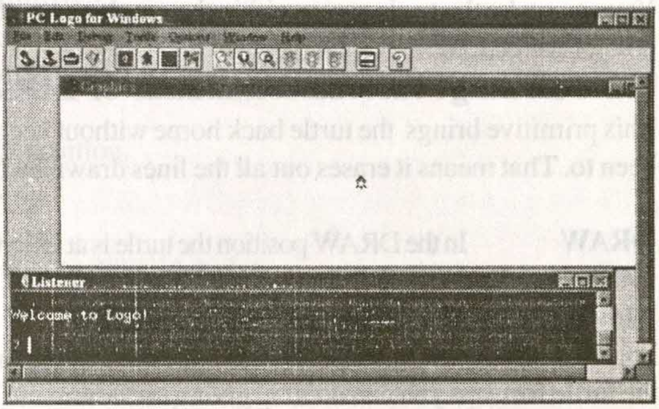
To run Logo from DOS prompt, type the following command :

C:\LOGO> LOGO (let us assume that the file for running Logo is in the LOGO directory). The initial Logo screen will appear as follows.



```
All set. Have fun !!
Toplevel
?
```

In case of Logo for Windows, we should click on the program icon for Logo for Windows from the desktop. The initial Logo for Windows screen will appear as follows.



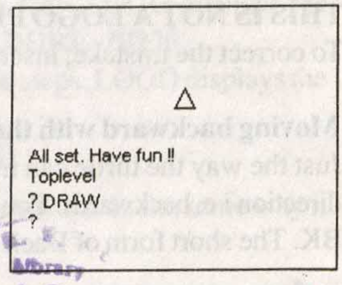
```
Welcome to Logo!
?
```

← Turtle in Logo for Windows

All the Logo primitives which work in **Logo for Windows** also works in **DOS based Logo**. Like all Windows based applications Logo for Windows also interact with mouse. There are menus in Logo for Windows and we can perform many operations with their options. Logo for Windows has some extra features which DOS based Logo does not have. The most interesting feature is the shape of the turtle which looks like a real life turtle. We will discuss about those commands and primitives later.

2.2 The Turtle

When you load LOGO on your computer and type DRAW, a triangular △ picture resembling a turtle will be displayed on the screen.



```
All set. Have fun !!
Toplevel
? DRAW
?
```

Library
23/3, B. C. Road
16072

Turtle	A triangular figure with its face upwards appears at the centre of the screen is known the **Turtle**.
HOME	The place at the centre of the screen where the turtle resides is called its **HOME**.
Text Area	The lower portion of the screen is used for writing commands to the turtle and is known as **Text Area**.
Graphics Area	The area above text area is known as **Graphics Area** and the turtle moves within the graphics area.
Primitives	The instructions or commands given to the turtle are known as **Primitives.**

You can make the turtle move within the graphics area forward and backward in every possible direction.

2.3 Learning various commands of LOGO

This primitive brings the turtle back home without keeping any trace of the places it has been to. That means it erases out all the lines drawn by the turtle.

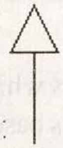
DRAW In the DRAW position the turtle is at its initial position with its face upwards.

Moving forward with the help of FD primitive

Forward means to move ahead (in the direction of the turtle's face). If you want to move the turtle forward you can do it by giving the command or primitive FD which is a short form of FORWARD.

Syntax: FORWARD (no. of steps) Or FD (no. of steps)

e.g. FD 50



You must remember to type a blank space between FD and the number of turtle steps or else your computer will show an error message.

For instance, if you type: FD80

You will get a message on the screen which will read

THIS IS NOT A LOGO PROCEDURE: FD80

To correct the mistake, insert a blank space between FD and 80 i.e. FD 80

Moving backward with the help of BK primitive

Just the way the turtle can move forward you can also make it move in the backward direction i.e. backwards. You can move the turtle backward with the help of the primitive BK. The short form of Back is **BK**.

Try this on the computer by yourself:

Syntax : BK (no. steps)
e.g. BK 25

You must remember to type a blank space between BK and no. of turtle steps or else it will give an error message.
Therefore if you type BK25 (if you do not keep any space between BK and 25) the computer will give the following message

THIS IS NOT A LOGO PROCEDURE :BK25

Clearing the screen with CS primitive

Suppose you want to wipe off the drawing within the graphics area and leave the text area of the screen as it is. In this case you have to use CS which means Clear Screen.
Thus on typing the primitive CS :

- ☺ The turtle goes back to HOME position.
- ☺ The figure drawn is wiped out.
- ☺ Turtle has its face upwards.
- ☺ Text area at the bottom of the screen remains as it is.

Clean

This command clears the screen but leaves the turtle in its last position

What happens if you make a mistake while typing ?

If we find a spelling mistake before pressing the enter key we can correct it by pressing the **Backspace** key. With the help of arrow keys we can position the cursor, next to the letter which is incorrect and press the backspace key, then type the correct letter and press the Enter key.
If we make a spelling mistake while typing a command or type a wrong command and press the Enter Key, LOGO gives an error message.
If we type BD30 instead of BK 30 and press the <Enter> Key, LOGO displays the message on the screen: **THIS IS NOT A LOGO PROCEDURE: BD30**
Similarly if we type FD and forget to put the number of turtle steps, LOGO displays the following message:
THIS PROCEDURE REQUIRES MORE INPUTS: FD

You have just learnt that the turtle can move forward and backward. In the same way it can move sideways i.e. on the right and left direction.

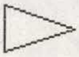
Thus if we give appropriate angle we can turn the face of the turtle on any side and move them forward or backward.
To draw these angles with the help of LOGO you must know how to turn the turtle right and left. To do so, the RIGHT and LEFT primitives are used.

Let us learn to move the face of the turtle on the right and left.

Moving on the right using RT primitive

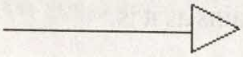
If you want to turn the turtle through the right direction , you have to use the primitive RIGHT or RT followed by the angle in degrees. (your right hand is turtle's right side too).
Syntax: RT (angle in degrees)
You can also use the primitive RIGHT instead of RT
Remember to type a space between the primitive RT and no. of degrees.

e.g.: RT 90



This will move the head of the turtle through 90 degrees turn on the right.

```
? RT 90 FD 30
```



Moves the turtle on the forward direction with 30 turtle steps having its head 90 degree on the right.

Moving on the right using LT primitive

In the same way that you made the turtle face right, you can also make it face left. To do this use the primitive to be used in LEFT or LT (in short)
Syntax:-LEFT (ANGLE IN DEGREES)

OR

LT (ANGLE IN DEGREES)

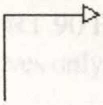
e.g.
LT 90
LEFT 90

[Note :- Remember to type a space between the primitive and no. of degrees like you did for FD and BK.]

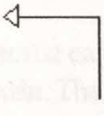
Try this on your computer.

TO MOVE THE TURTLE THROUGH LEFT AND RIGHT

FD 45 RT 90 FD 45



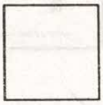
FD 45 LT 90 FD 45



Drawing a square :

FD 50 RT 90 FD 50 RT 90

FD 50 RT 90 FD 50 RT 90



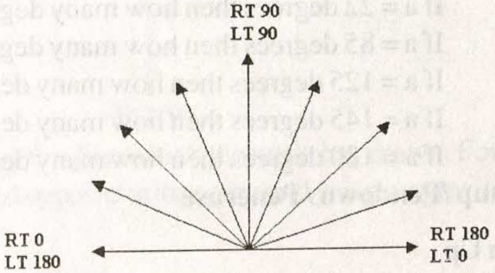
If you replace RT with LT, a similar square will be drawn but the movement of the turtle will be in the left direction If you replace FD with BK you can still draw a square.

It is not necessary to write each command on a separate line, you can write them on one line leaving a blank space between them

e.g. : FD 50 RT 90 FD 50 RT 90 FD 50 RT 90 FD 50 RT 90

Let us move around the screen

You have been moving the turtle so far only through 90 degree angles both in Right and Left direction. But it can move through any angle you wish it to move. You must have learnt about ANGLES in Geometry.



The two figures given above show the turtle can move through 0^0 to 180^0 in right and left direction. Although they look similar there's a very important difference. Ask your teacher to help you to understand.

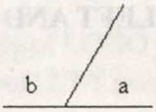
I am sure you have learnt more about angles and hence will be able to draw a TRIANGLE with your TURTLE.

You must have noticed that total angle on a straight line = 180 degrees.

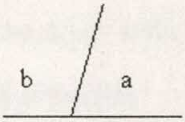
Therefore if one angle is given then the other can be easily found.

For e.g.:

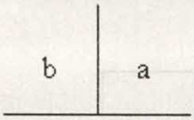
If a = 60 then
b = 180 – 60 = 120



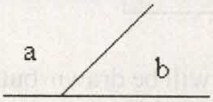
If a = 75 then
b = 180 – 75 = 105



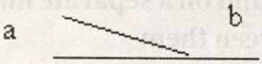
If a = 90 then
b = 180 – 90 = 90



If a = 135 then
b = 180 – 135 – 45



if a=25 then
b=180-25=155

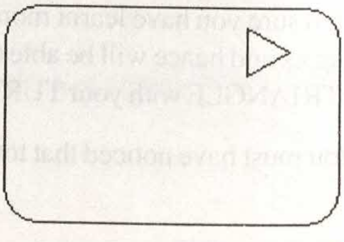


Do it yourself

1. If a = 22 degrees then how many degrees will angle b be? ________
2. If a = 85 degrees then how many degrees will angle b be? ________
3. If a = 125 degrees then how many degrees will angle b be? ________
4 If a = 145 degrees then how many degrees will angle b be? ________
5. If a = 180 degrees then how many degrees will angle b be? ________

Penup /Pendown / Penerase

Pen Up



When human beings write on paper, he needs a pen in his hand. Whenever he writes, the pen is put down on the paper and whenever he wants to leave some space between the words he lifts the pen up from the paper. Similarly, the logo turtle holds a pen in its tail & with the help of this pen it leaves a trail on the screen whenever you ask it to move. This pen is invisible to us and if you want to move the turtle anywhere on the screen without leaving a trail behind, you will have to ask the turtle to lift its pen up.

e.g.

PU FD 30 RT 90 FD 30

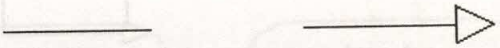
On typing the above primitives only the Turtle moves without its Trail.

PenDown

In the same way that the turtle can lift its pen up it can also put it back and leave a trail of its movements on the screen. The primitive for doing this is **PenDown** or PD in short.

Try this on your computer.

DRAW
RT 90 FD 30
PU FD 30
PD FD 30



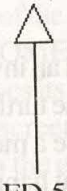
PenErase

While writing, if you make errors you can erase your mistakes with the help of eraser. You can similarly erase the errors that may be committed by the turtle by using the primitive **PENERASE** or **PE** in short.

Type DRAW, press enter and then type FD 50.

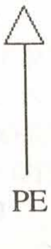
After you press enter the turtle will move 50 steps forward.

DRAW



FD 50

Now say, you wish to erase this line which the turtle has drawn. For this you must type PE and then give the command opposite to the command you gave previously, that means you must type BK 50 now.

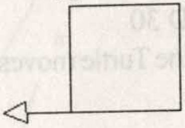


PE

BK 50

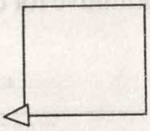
But always remember before you start to draw anything else with the turtle you must type PD as you did for PU. If you forget to give the command PD, the turtle will continue erasing which ever command, you have typed.

```
FD 30 RT 90
FD 30 RT 90
FD 30 RT 90
FD 40
```



We will notice that by mistake the turtle has moved forward by 10 steps. To erase the extra steps type the following

```
PE
BK 10
```



Hide Turtle and Show Turtle

Hide Turtle (HT)

Even after completing the figures the turtle remains visible on the screen. To hide the turtle, there is a primitive called HIDE TURTLE or HT (short form). If you key in the primitive HT, the turtle will immediately disappear from the screen, leaving rest of the picture as it is.

Show Turtle (ST)

If you want to bring the turtle back on the above screen write the primitive SHOW TURTLE or ST. The turtle will immediately reappear on the screen.

Fence

This primitive immediately puts an invisible fence around the screen to stop the turtle from moving outside its field. Thus the turtle can not go out of the fence. If an attempt is made to move the turtle beyond the fence a message will immediately appear on the screen.

Give the command and see what happens:

```
FENCE
FD 70
```

Turtle will draw a straight line of 70 steps.

```
FD 100
```

A message will be displayed on the screen.

```
ATTEMPT TO MOVE THE TURTLE BEYOND THE FENCE
```

Before using the primitive FENCE you must do the following :

- ☺ clear the screen
- ☺ return the turtle to its HOME

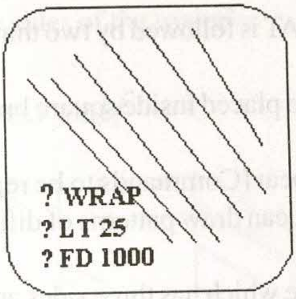
Wrap

The primitive WRAP also places a fence around the screen but it does not prevent the turtle from going outside it. However wrap ensures that the turtle returns to its field after carrying out the desired amount of movement. Thus the primitive wrap gets the turtle wrapped around the screen.

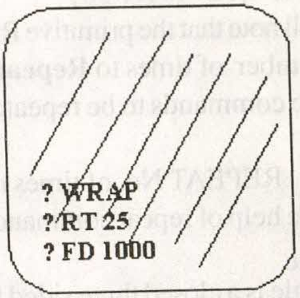
Try this on your computer.

a)
```
WRAP
LT 25
FD 1000
```

b)
```
WRAP
RT 25
FD 1000
```



```
? WRAP
? LT 25
? FD 1000
```



```
? WRAP
? RT 25
? FD 1000
```

Window

The primitive WINDOW does away with restriction on the turtle's movements within the field. Actually, the monitor screen is only a small part of the area within which the turtle can move. The turtle can move several steps from its HOME position in all directions. The primitive WINDOW ensures that once the turtle leaves its field on the screen it can return only after it has taken a look at any direction of the screen. Only a small part of the area covered may be visible on the screen. Even though the entire distance travelled by the turtle is not visible, a window is created on the screen through which you can have a view of part of the area covered. After typing the primitive WINDOW you won't be able to see the turtle unless and until you type the primitive HOME.

Try this on your Computer

```
WINDOW
FD 2000 RT 90
WINDOW
FD 5000 RT 90
FD 500 RT90
FD 500
```

2.4 Repeat Command

When you are drawing a figure, quite often you repeat some primitives. For instance, while drawing a square you have to write the same set of primitives 4 times as in the given example :

```
FD 40 RT 90
FD 40 RT 90
FD 40 RT 90
FD 40 RT 90
```

You can avoid writing the same commands several times by using the primitive REPEAT. The above 4 set of similar primitives can be replaced with a single set of primitive

```
REPEAT 4[FD 40 RT 90]
```

You will note that the primitive REPEAT is followed by two things:

- Number of times to **Repeat.**
- The commands to be repeated are placed inside square brackets.

Syntax: REPEAT No. of times to repeat [Commands to be repeated]

With the help of repeat command you can draw patterns of different shapes and sizes.

Triangle

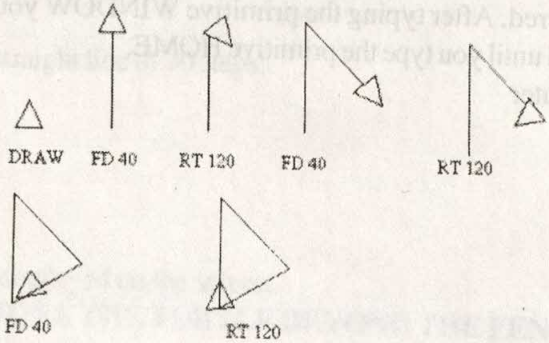
A triangle is a closed three sided figure which has three sides and three angles.

You have learnt from the clock that the tip of the small hand travels 360 degrees. Similarly, in a triangle, the turtle has to turn 360 degrees to complete one full triangle. In this case, we will consider only triangles having all sides and angles equal. Since all the angles are equal, the turtle will make all 3 turns equal. So, each exterior angle is 360/3 = 120 degrees.

To draw the triangle we give these commands.

To draw an equilateral triangle having sides of 40 units

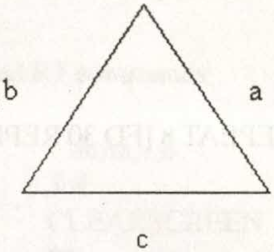
The steps required



```
FD 40    RT 120
FD 40    RT 120
FD 40    RT 120
```

Instead of typing FD 40 RT 120 three times, it can be done by using the repeat command.
e.g.

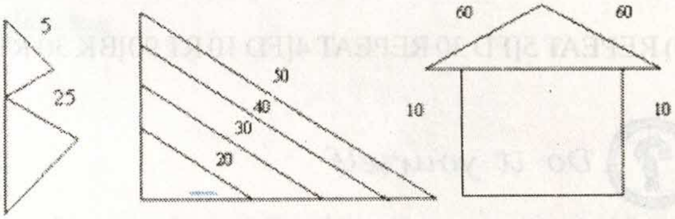
```
REPEAT 3 [FD 40 RT 120]
        OR
REPEAT 3 [FD 40 RT 360/3]
```



Now, if you wish to draw a triangle that looks like your turtle in the DRAW position then what should you do?
*Note a, b, c are the three sides of the triangle.

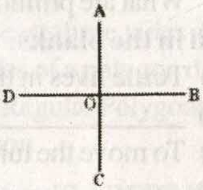
Do it yourself

Try drawing these shapes:



More of Repeat

For drawing the given figure below having 4 arms we can also use the command REPEAT, as we are using certain commands repeatedly.



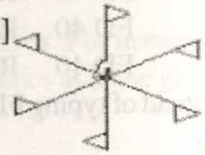
First of all we have to draw a straight line from the HOME position say OA. Then bringing turtle back to its original position we have to turn it and proceed forward for the second and so on.

The format can be given as follows:
Repeat(no. of arms) [FD(no. of steps) (Command of the polygon) BK (no. of steps) RT (360/no. of arms)]

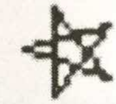
e.g. REPEAT 4[FD 60 REPEAT 4[FD 20 RT 90] BK 60 RT 360/4]
Where no. of arms=4
no. of steps=60
Command of the Polygon =REPEAT 4[FD 60 RT 90]
[Total turns =360]

Examples on repeating Repeat primitives

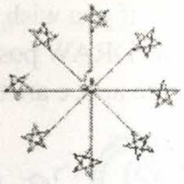
(i)
```
REPEAT 6[FD 40 REPEAT 3[FD  10  RT  120]BK 40  RT 360/6]
```



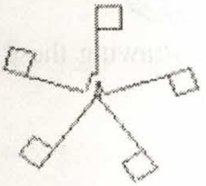
(ii)
```
REPEAT 5 [FD 15 RT 144]
```



(iii)
```
REPEAT 8 [FD 30 REPEAT 5 [FD 15 RT 144]BK 30 RT 360/8
```



(iv)
```
REPEAT 5[FD 30 REPEAT 4[FD 10 RT 90]BK 30 RT 360/5]
```



Do it yourself

Answer the following :

1. What message will you get when you start LOGO?
2. What are primitives?

Fill in the blanks:

(a) Turtle lives in the____________________ of the screen.

(b) ____________ command is used to move the turtle in the back-ward direction.

(c) To move the turtle ahead to draw a line, the command used is________________.

(d) ______________ will turn the turtle in right direction.

(e) ______________ will turn the turtle in left direction.

(f) ______________ command will hide the turtle.

(g) ST commands brings the _____________ back on the screen.

Write TRUE *or* FALSE:

(a) The short form of HIDETURTLE is HD.

(b) We cannot make the turtle disappear.

(c) The turtle holds a pen in its hand.
(d) PU and PD are not used in the same program.
(e) PU orders the turtle to draw lines on the screen.
(f) HOME command is used to put the pen down.
(g) The pen of the turtle is visible.
(h) Repeat command is used for drawing an arc.
(i) A circle can be drawn without the REPEAT command.
(j) 36 times REPEAT command will make an arc.
(k) The size of the circle can be changed according to FD and RT commands.

Match the statements of Column (A) with Column (B).

Column A	Column B
(a) Forward command can be written as	Tail
(b) Primitive used for cleaning the screen is	CLEARSCREEN
(c) Turtle holds the pen in its	PU
(d) Turtle lifts its pen up with	FD

Differentiate between the following

(a) DRAW and PE
(b) HOME and PE
(c) CS and PE

2.5 Drawing Polygons

The word "Polygon" is made up of two words; "poly" and "gon" meaning many sides. A polygon is closed shape bound by straight lines. A square, a triangle, a hexagon are examples of closed shapes and hence may be termed as polygons.
If we think carefully we understand that polygons should have at least three sides A polygon cannot be formed by two straight lines or two sides. All the sides of a polygon do not have to be equal. The polygon which has all its sides equal are called Regular Polygons. A square, a hexagon and an equilateral are examples of Regular Polygon.

While drawing a square we see that one set of instructions is repeated 4 times. The REPEAT command in LOGO is used to draw all those figures using a shorter instruction.

Thus if we type REPEAT 4[FD 30 RT 90]
we get a square as an output.
A square is a four sided figure, hence the number of REPEAT primitive used is 4. The instruction REPEAT 4[FD 30 RT 90] draws a square. While drawing a square, the turtle turns through 90 degrees four times and comes back to its starting position. The total turn therefore is 90*4 which is equal to 360.The total turtle trip is the number of units the turtle

has to turn to point towards the direction that it was pointing to, when it started. The turtle completes total trip of 360 degrees when it draws a polygon.

To draw a triangle having 30 turtle steps as its sides we will type

REPEAT 3[FD 30 RT 360/3]

The triangle is a three sided figure, hence the number of Repeats Primitive would be 3 times.

The instruction REPEAT 3 [FD 30 RT 360/3] draws a triangle. While drawing a triangle the turtle turns through 360/3=120 degrees three times and comes back to its starting position. The total turn therefore is 120 * 3 which is equal to 360. The total trip is the number of units the turtle has to turn to point towards the direction that it was pointing to when it started. The turtle completes a total trip of 360 degrees when it draws a polygon.

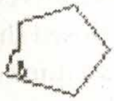
Carefully read the following table

Name of the POLYGON	No of sides/ No. of Repeats	Turning angles	Total turn
TRIANGLE	3	360/3=120	360
SQUARE	4	360/4=90	360
PENTAGON	5	360/5=72	360
HEXAGON	6	360/6=60	360
HEPTAGON	7	360/7=51.42	360
OCTAGON	8	360/8=45	360
NONAGON	9	360/9=40	360
DECAGON	10	360/10 =36	360

To draw a Pentagon which is a five sided figure we can use the number of REPEAT as 5.

Let the sides of the pentagon be 20 turtle steps then the primitive will be

REPEAT 5[FD 20 RT 360/5]



Thus to draw a polygon of any number of sides we have to make the turtle go forward the length of the polygon and turn right by an amount equal to (360/number of sides in the polygon), repeatedly as many times as the number of sides of the polygon.

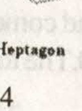
Given are the figures of different polygon with sides of 25 turtle steps. Write the primitives to draw them using REPEAT command.

Triangle

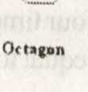
Square

Pentagon

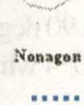
Hexagon



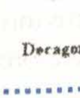
Heptagon



Octagon



Nonagon

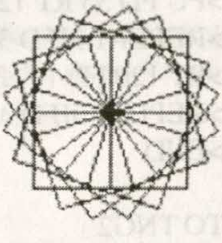


Decagon

Always remember, to draw any regular polygon, the turtle turns through 360 degrees totally. It comes back to its starting position and points towards the direction it did at the start.

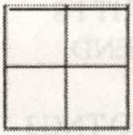
E.g. 1

```
TO SQ 9
>REPEAT 20 [REPEAT 4 [FD 30 RT 90]RT 360/20]
>HT FS
END
```

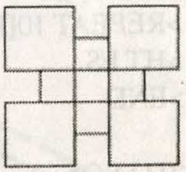


Patterns with Square

```
TO SQ1
>REPEAT 4 [REPEAT 4 [FD 25 RT 90] RT 90]
>HT FS
>END
```

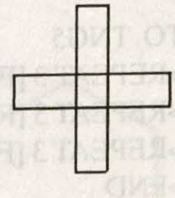


```
TO SQ2
>REPEAT 4[FD 15 RT 90] RT 180
>REPEAT 4[FD 30 RT 90]
>PU FD 15 LT 90 PD FD 15 LT 90
>PU FD 15 PD RT 180
>REPEAT 4[FD 30 LT 90] RT 180
>PU FD 15 PD
>REPEAT 4[FD 30 RT 90]
>RT 90 PU FD 15 RT 90 PD
>FD 15 PU HOME FD 15 PD
>REPEAT 4[FD 30 LT 90]
>PU FD 15 RT 90 PD FD 15 PU HOME
>LT 90 FD 15 PD RT 90 FD 15 HT FS
>END
```

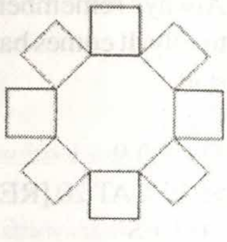


Patterns with Rectangles and Triangle

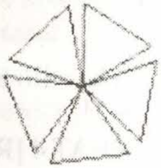
```
TO REC1
>PU BK 20 PD
>REPEAT  2 [FD 60 RT 90 FD 20 RT  90]  PU
>FD 20 LT 90 PD FD 20 RT 90 FD 20
>RT 90 FD 60 RT 90 FD 20 RT 90 HOME FS
>END
```



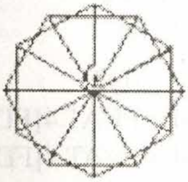
```
TO TNG1
>PU BK 40 PD REPEAT 3[FD 35 RT 120]
>PU FD 35 RT 120 FD 17 LT 120 PD
>REPEAT 3[FD 35 RT 120] PU FD 35
>RT 120 FD 17 LT 120 PD
>REPEAT 3[FD 35 RT 120] HT FS
>END
```



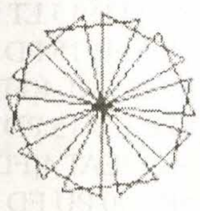
```
TO TNG2
>REPEAT 5[REPEAT 3 [FD 35 RT 120] RT 360/5]
>HT FS
>END
```



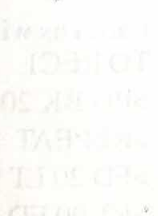
```
TO TNG3
>REPEAT 12[REPEAT 3[FD 35 RT 120] RT 360/12]
>HT FS
>END
```



```
?TO TNG4
>REPEAT 10[REPEAT 3[FD 40 RT 120]RT 36]
>HT FS
>END
```



```
?TO SQ5
>REPEAT 10[REPEAT 4[FD 30 RT 90]RT 36]
>END
```



Type the following procedures and see the patterns on the graphics screen.

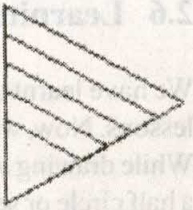
```
TO  TNG5
>REPEAT 3 [FD 60 RT 120]
>REPEAT 3 [FD 40 RT 120]
>REPEAT 3 [FD 20  RT 120]
>END
```

```
?TO SQ4
>REPEAT 6[FD35 SQB BK 35 RT 60 FD 10] HT FS
>END
```

There are a number of ways to draw the figure below which consists of triangles of different sizes one inside the other. The side of the inner most triangle is 30 turtle steps of each triangle after it is 10 steps larger than the previous one

We can use procedures to draw triangles of different sizes.

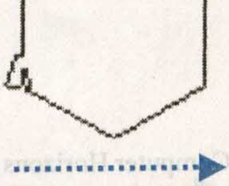
```
?TO TRI1
>REPEAT 3[FD 30 RT 360/3]
>END
?TR1 IS DEFINED

?TO TRI2
>REPEAT 3[FD 40 RT 360/3]
>END
?TR2 IS DEFINED

?TO TRI3
>REPEAT 3[FD 50 RT 360/3]
>END
?TRI3 IS DEFINED

?TO TRI4
>REPEAT 3[FD 60 RT 360/3]
>END
?TRI4 IS DEFINED

?TO TRI5
>REPEAT 3[FD 70 RT 360/3]
>END
?TRI5 IS DEFINED

?TRI1 TRI2 TRI3 TRI4 TRI5
```



Patterns with Hexagons

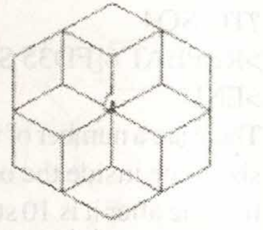
1.

```
?TO HEX1
>REPEAT 6[FD 30 RT 360/6]
>END
?HEX1
```



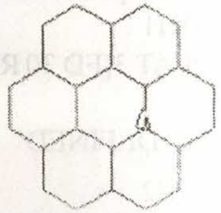
2.

```
?TO HEXA2
>REPEAT 6[HEX1 FD 30 RT 360/6]
>END
?HEXA2
```

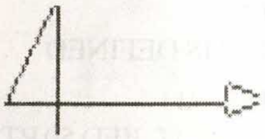


3.

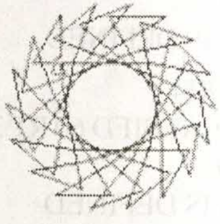
```
?TO HEXA3
>REPEAT 6[HEX1 FD 20 LT 360/6]
>END
? HEXA3
```



```
?TO DESIGN
>FD 33 RT 30 BK 30 LT 300 FD 63
>END
```



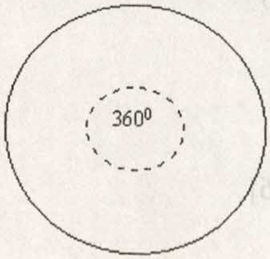
```
?TO DESIGN1
>REPEAT36 DESIGN RT 360/36]
>END
```



2.6 Learning to draw Circles

We have learnt to draw straight lines and diagonal lines, polygons, etc in the previous lessons. Now, we shall learn to draw circles and arcs.

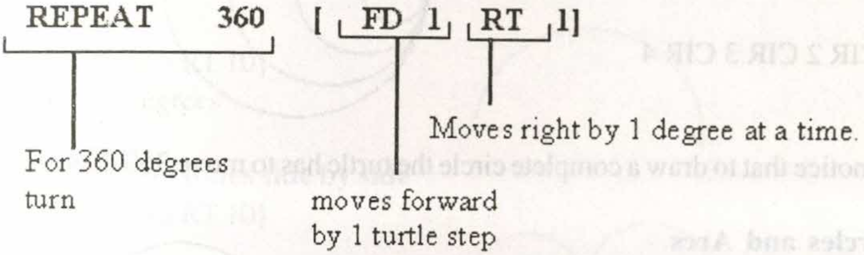
While drawing a circle the turtle has to move through 360 degrees. Whereas for drawing a half circle or semicircle the turtle has to move through a total of 180 degrees.



In logo ,circles can be drawn only with the help of REPEAT command. We will get a circle by typing the following command.

```
?REPEAT 360[FD 1 RT 1]
```

Let us analyse the primitives carefully


REPEAT 360 [FD 1 RT 1]
Moves right by 1 degree at a time.
For 360 degrees turn
moves forward by 1 turtle step

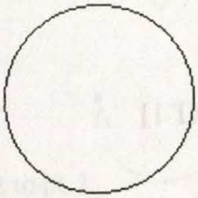
In this case when we take FD 1 and RT 1, after every 1 forward turtle step, the angle is turned to the right by 1 degree, and thus the process continues for 360 times, because

360 times 1 degree=360 degree

To change the size of the circle we can change the forward steps and right angle degree. Thus as the RT number increase the repetition number decreases.

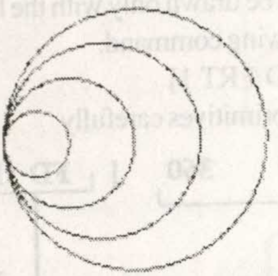
REPEAT 36[FD 5 RT 10] will also draw a circle of smaller size than above. The most important thing to remember is the number of REPEATS multiplied by the right angular or left angular turn should be equal to 360 degrees.

In the above case 36 times * 10 degree=360 degree



```
?TO CIR 1
>REPEAT 90[FD 1 RT 360/90]
>END
?CIR 1 IS DEFINED
?TO CIR 2
>REPEAT 180[FD 1 RT 360/180]
>END
?CIR 2 IS DEFINED
?TO CIR 3
>REPEAT 270[FD 1 RT 360/270]
>END
?CIR 3 IS DEFINED
```

```
?TO CIR 4
>REPEAT 360[FD 1 RT 360/360]
>END
?CIR 4 IS DEFINED

?CIR 1 CIR 2 CIR 3 CIR 4
```

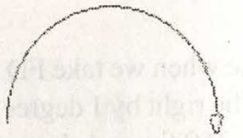


You will notice that to draw a complete circle the turtle has to move 360 degrees.

Semi Circles and Arcs

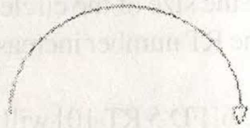
```
?REPEAT 180[FD 1 RT 1]
```

Total turn:180 degrees



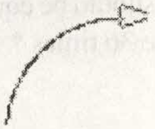
```
?REPEAT 36[FD 5 RT 5]
```

Total turn:180 degrees



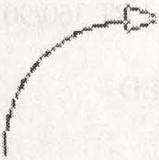
```
?REPEAT 18[FD 5 RT 5]
```

Total turn:90 degrees



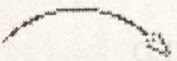
```
?REPEAT 90[FD 0.7 RT 1]
```

Total turn:90 degrees



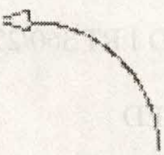
```
?RT 45
?REPEAT 90[FD 0.6 RT 1]
```

Total turns : 135 degree



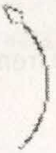
```
?REPEAT 90[FD 0.7 LT 1]
```

Total turn : 90 degrees



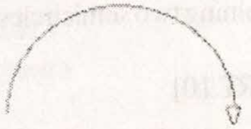
```
?RT 45
?REPEAT 90[FD 0.6 LT 1]
```

Total turn: 45 degrees



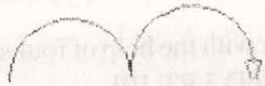
```
?REPEAT 18[FD 5 RT 10]
```

Total turn : 180 degrees



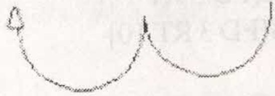
To draw two semicircles side by side

```
?REPEAT 18[FD 6 RT 10]
?RT 180
?REPEAT 18[FD 6 RT 10]
```



To draw two semicircles in the left direction you have to point the face of the turtle downwards while starting the figure.

```
?RT 180
?REPEAT 18[FD 6 RT 10]
?RT 180
?REPEAT 18[FD 6 RT 10]
```

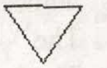


We can analyse the figure step by step.

STEP 1

```
?RT 180
```

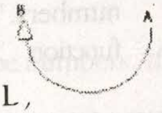
(The turtle faces downwards)



STEP 2

```
?REPEAT 18[FD 6 RT 10]
```

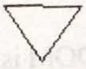
(The turtle draws the first semi circle from pt. A to pt. L ,



STEP 3

```
?RT 180
```

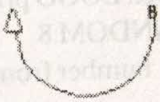
(The turtle faces downwards)



STEP 4

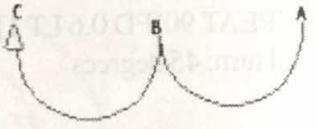
```
?REPEAT 18[ FD 5 RT 10]
```

(The turtle draws the second semicircle from pt.B to pt.C)



```
?REPEAT 18[FD 5 RT 10]
```

(The turtle draws the half circle from pt.A to pt.B)



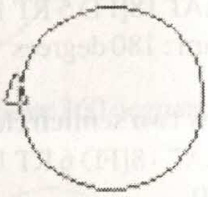
Now we have learnt to draw semicircles both in left direction and right direction.
To draw a full circle joining two semicircles.

Step 1:

```
? REPEAT 18[FD 5 RT 10]
```

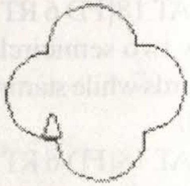
Step 2:

```
? REPEAT 18[FD 5 RT 10]
```



We can draw a flower with the help of four semicircles.

```
?LT 90 REPEAT 18[FD 3 RT 10]
?LT 90 REPEAT 18[FD 3 RT 10]
?LT 90  REPEAT 18[FD 3 RT 10]
?LT 90 REPEAT 18[FD 3 RT 10]
```



2.7 Arithmetic Operations in LOGO

In your previous classes you have already learnt about some of the elementary arithmetic operations in LOGO, viz.

Addition	The SUM function or the + operator is used to add numbers.
Subtraction	The "–" operator is used to subtract two numbers.
Multiplication	The * operator is used to multiply two numbers.
Division	The QUOTIENT function or the / operator is used to divide numbers. To get the remainder you can use REMAINDER function

RANDOM and RERANDOM command

The command RANDOM is used to print a randomly selected number. The command RANDOM is given with a number. Any number from 1 and to the given number is printed as a random number. LOGO prints only whole numbers as random numbers.

Examples PR RANDOM 8

LOGO prints any number from 1 to 8

…………….▶

The command RERANDOM is used with RANDOM to make LOGO print the same random number again. The command is useful when writing procedures for guessing games.

Examples

REPEAT 3 [PR RANDOM 9]

Logo prints any three numbers from 1 to 9

REPEAT 3 [RERANDOM PR RANDOM 9]

LOGO prints any number from 1 to 9 three times.

Rounding Off

You can round off a fractional number by using the primitive ROUND.

e.g. ROUND 9.99
Result 10

Finding Square Root of a number using SQRT primitive

The primitive to calculate the square root of a number is SQRT.

e.g. SQRT 36
Result :6.00

Use of Brackets

The BODMAS rule of mathematics also apply in LOGO; i.e. the order of operation follows the rule : i) **B**racket ii) **O**f iii) **D**ivide iv) **M**ultiply v) **A**dd vi) **S**ubtract. If you want to have a specific operation to be done first it has to be put within brackets and the operation will follow the left to right order. The given example will

e.g. 1. 45/5*3 2. PRINT 45/(5*3)
Result:27 3

Use of comma

You must be careful not to use commas when you type numbers. If you use a comma, it will be treated as a word. For instance if you type:

120+3,450

Logo will respond

THIS IS NOT A LOGO PROCEDURE

2.8 Printing Messages

The command PRINT or PR is used to print messages on the screen.Messages to be printed can be either words or lists. A word can be a letter, a number, any special symbol or a combination of these. A list consists of a number of words separated by a space. Lists are enclosed in square brackets.

Examples of words

HELLO!
GOOD MORNING
2000
GOOD/BAD

The word to be printed is to be given with quotation marks after the PRINT command . For example, the command to print the word HELLO is

```
PR “HELLO
```

Examples of lists

```
PR [WELCOME TO THE COMPUTER WORLD]
PR [THIS IS AN EXAMPLE OF A LIST]
```

The messages are printed just below the commands that you have typed in. The command CLEARTEXT is used to clear the text from the graphics screen so that messages can be printed.

You have seen how you can write messages through LOGO. In fact there are a number of commands in LOGO that enable you to play around with your words and sentences.

The Logo primitives which act on words and lists enable us to:

☺ Join word and list.
☺ Separate letter or letters from a word a or words from a list of words.
☺ Search and look inside a list.

You can also join sentences from two list or word from two or more letters placed alone or in strings. The primitive for doing this are:

Sentences or SE is used for joining two or more list or for joining words with lists.

Word is the primitives for joining 2 or more characters. SENTENCE or WORD are logo primitives. They carry a logo instruction to join two or more inputs. **SENTENCE** and **WORD** cannot be used as procedure names.

SENTENCE

PRINT SENTENCE [MANY HAPPY RETURNS] [OF THE DAY]

The square brackets will get removed and the single sentence will be printed as :

MANY HAPPY RETURNS OF THE DAY.

WORD

PRINT WORD CONGRATULATIONS will display
CONGRATULATIONS

However, word cannot be used to combine lists. When more than two words or lists have to be combined, then the primitive word and sentence must be put in parenthesis().

PRINT (SENTENCE[A LITTLE SINCERITY][IS A DANGEROUS THING AND A GREAT DEAL][[OF IT IS ABSOLUTELY FATAL]) will display

A LITTLE SINCERITY IS A DANGEROUS THING AND A GREAT DEAL OF IT IS ABSOLUTELY FATAL.

PRINT(WORD "MAGN "IFIC "ENT) will display

MAGNIFICENT

Separating Words and Sentences

Logo has some special primitives that help you to select or separate:

☺A letter or letters from a word.
☺A word or words form a list.

The primitives for carrying out these functions as follows.

- ☺ FIRST: This primitive will print the first (a) letter of a word(b) word in a list.
- ☺ LAST: This will output the last (a) letter of a word (b) word in a list.
- ☺ BUTFIRST OR BF:- It will output all except the first
  (a) letter of a word
  (b) word in a list

Word

INPUT	OUTPUT
PRINT FIRST“LOGO	L
PRINT LAST”LOGO”	O
PRINT BL”LOGO	LOG
PRINT BF”LOGO	OGO

List

INPUT	OUTPUT
PRINT FIRST [ADD TWO NUMBERS]	ADD
PRINT LAST [ADD TWO NUMBERS]	NUMBERS
PRINT BF [ADD TWO NUMBERS]	TWO NUMBERS
PRINT BL [ADD TWO NUMBERS]	ADD TWO

Do it yourself

What will be the LOGO output for the following instruction

(a) PR BF “abcdef”
(ii) PR BUTLAST [INDIA IS A VAST COUNTRY]
(iii) PR FIRST BUTFIRST [WELCOME TO WORLD OF COMPUTER]
(iv) PR F PUT “TAJ [MAHAL IS SITUATED IN AGRA]
(v) PR LAST BUTLAST [MYSORE IS A CITY OF GARDENS]

Searching Word and List

You may want to find out if a particular word is a part of a list or particular character is a part of a word.

The LOGO primitive for finding this out is: MEMBER?

Depending on whether the word or sentence you are looking for, is a part or member of the word or list, LOGO replies TRUE or FALSE.

e.g.:

```
PRINT MEMBER?"WB[UP WB AP HP]
TRUE
P
TRUE
```

Adding New Letter or Word in Word or List

Logo has primitives that enables you to add new inputs into existing words or lists. The primitives are:

FPUT : This helps you to insert an input at the beginning of a list. FPUT is the short form of 'firstput'
LPUT : This helps you to insert an input at the end of a list. LPUT is the short form 'lastput'.
e.g.:-
PRINT FPUT "I[LIKE LEARNING COMPUTERS] will display

I LIKE LEARNING COMPUTERS

PRINT LPUT "COMPUTERS [I LIKE LEARNING] will display

I LIKE LEARNING COMPUTERS

2.9 Procedures

Procedures enables you to write a whole set of commands in one session and the turtle to perform them smoothly. In computer jargon "**Procedures**" are generally referred as programs. A procedure consists of three parts

- Title
- Body
- End

Title

While writing a procedure ,TITLE should get the precedence over other two parts. Title line appears first. It begins with the primitive TO, which is followed by the name you want to give to the procedure.

e.g:

TO SQUARE(if you are writing the procedure for drawing a square)

Rules for writing procedures names

- A procedure name may be composed of letters, numbers, or symbols.
- There should be no space in a procedure name.
- If numbers are used in a name they must be combined with letters.
- Symbols like ( ),#,[ ],cannot form part of the procoure name.
- Name should be short (good name is that which describes what the procedure will do as it is easier to remember such names.).
- A logo primitive cannot be used in a procedure name as these primitives have specific meaning in logo.
- If the letter E is used in name it must be used together with other letters.

Body

It is made up of all the primitives required to draw a given figure.

e.g.

```
FD 60 RT 90 FD 60
RT 90 FD 60 RT 90
FD 60
```

End

The last part of a procedure is the END command which conveys to the turtle that all the primitives have been given and the procedure is now complete .The primitive for ending a procedure is END.

After you have keyed in the primitive END, press the enter key. The monitor will display the message:

```
SQUARE DEFINED
```

For example:-

```
    TO  TWOSQUARE
    REPEAT  4[FD 60 RT 90]
    REPEAT 4[FD 20 RT 90]
```

The monitor will display the message:

```
        TWOSQUARE  DEFINED
```

To call this procedure write the procedure name

```
TWOSQUARE
```

Nested Procedure

When a procedure is too long, it becomes difficult to identify which part of the drawing is done by which set of primitives. One way to reduce the length of a procedure is to write several small procedures which can be linked to the master or main procedure. Then by writing the name of the master procedure you can draw an entire picture. If you want to draw four nested rectangles you have to write four sub procedure and one master procedure.

SUB PROCEDURE 1:

```
TO FIRST
>REPEAT 2[FD 80 RT 90 FD 80 RT 90]
END
```

SUB PROCEDURE 2:

```
TO SECOND
>REPEAT 2[FD 60 RT 90 FD 60 RT 90]
END
```

SUB PROCEDURE 3:

```
TO THIRD
>REPEAT 2[FD 40 RT 90 FD 40 RT 90]
END
```

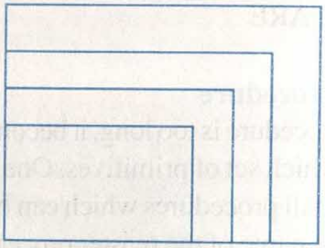
SUB PROCEDURE 4:

```
TO FOURTH
>REPEAT 2[FD 20 RT 90 FD 20 RT 90]
END
```

MASTER OR MAIN PROCEDURE

```
TO FOURRECTANGLE
>FIRST
>SECOND
>THIRD
>FOURTH
END
```

This is what you will see on the screen.



How to Call this Procedure

Type-FOURRECTANGLE

Do it yourself

1.Answer the following questions:

(a)What is a procedure?
(b)Write down any one rule for naming a procedure.
(c)Why do we use the END command?
(d)Why do we press Enter key after every information?
(e)What sign appears when the title line is entered?
(f)What is the meaning of '>' sign?
(g)How to draw a five-sided figure with 30 steps on each side using procedures?

2.State TRUE or FALSE:

(a)We write only the primitives in a procedure
(b)We start a procedure by writing TO.
(c)The body of the procedure contains the name of the procedure.
(d)"<" sign appears after the title line when the Enter key is pressed.
(e)END is used to end the procedure
(f)Abbreviations cannot be used for naming a procedure.
(g)The name of the procedure is written in the last line of the program.
(h)LOGO does not accept primitives as procedure names.

2.10 Editing, Storing, Erasing and Recalling

Editing

To edit means to correct or modify something that you have written. It is quite likely that you will make mistakes while keying in data. These mistakes may be of different types:

a. Errors in typing :e.g.: you may have typed KB instead of BK.

b. Errors in data itself :e.g.: if you want to type FD 75 whereas you typed in BK 75.

c. Syntax errors: Errors which arises when you do not follow the basic rules of the computer language in which you are working. Usually these errors are referred to as BUGS in the computer terminology. Removal of these bugs from a procedure is known as DEBUGGING.

PAUSE This command stops a procedure at the point where you have keyed, in this command.

CO After causing the procedure to PAUSE, you can continue by typing Procedure CO.

EDIT If you want to make corrections you have to use logo editor. The Primitive used for this purpose is EDIT. It should be followed by Quotes(")and the procedure name to be edited.

e.g.: EDIT "SQUARE

Press the F2 or escape key to get out of the logo editor.

Storing

You can store programs on secondary storage devices like floppy disk etc. Storing of programs in this manner is known as **'saving'** in computer terms. A disk allows you to store data and programs or procedures that you have defined and recall and use then at a later date. The primitives for doing this are:

SAVEPIC "(PICTURE/PROCEDURE NAME) : The primitive SAVEPIC has to be followed by quotes and the name of the procedure you want to save.

e.g.: SAVE"SQUARES

This saves the picture created by the procedure squares.

Erasing from Working Space

You may not like to save all your procedures. In fact you will like to erase name of your procedures to provide room in your working space. To do this you must use primitive ERASE, followed by quotes and the procedure name.

e.g.:- ERASE " SQUARES

Recalling from Disk

Recalling of a saved procedure is known as retrieving of a procedure. After you have saved a procedure, you may , at a later date want to use the procedure again, You must then use the primitive LOAD followed by a procedure name, e.g.:- LOAD "SQUARES. This will bring back to the working space the procedure for square which you have saved earlier.

If you want to recall a picture you must use the primitive LOADPIC followed by the picture name or procedure name.

e.g.: LOADPIC SQUARES 1

From Work Space

Text area can hold five lines of text and will display that portion of your procedure. Quite often you will like to have a look- at your procedure or you want to check the procedure names. You can do this before saving or after saving your procedure. For doing this first you have to load the procedure from floppy disk to memory. To do this use the command LOAD or LOADPIC as the case may be. This primitive will enable you to load all the procedure from the floppy disk to memory.

POTS

The primitive POTS means PRINT ONLY TITLES. This primitive displays only titles on the screen. Use the primitive POTS to display title on the screen e.g. :

```
POTS
TO SQUARE
TO TRIANGLE
TO  A
TO  ABC
```

POPS or PO

You may use either of the primitive POPS or PO to get a listing for all procedures that are currently in the work space.

Function of the Function Keys in Logo

Function Key	**Functions**
F1	EDIT
F2	SPLIT

F3	TEXT
F4	FULL
F5	AGAIN or AGN
F6	CLEAR TEXT SCREEN
F7	LOAD PICTURE FILE
F8	SAVE PICTURE FILE
F9	LOAD FILE OR LOAD
F10	SAVE FILE OR SAVE

2.11 LOGO for Windows

Logo can run in Windows environment also. You can start PC Logo for Windows by clicking on the program icon from the Windows desktop. The Logo environment contains common Windows elements, including windows, pull-down menus, and buttons. Let us discuss over the various elements of the Logo environment that you see when you start Logo.

The Graphics Window

The turtle moves around and draws the pictures in the Graphics Windows. This resembles the graphics area of LOGO, on DOS environment.

The LOGO turtle can move on a plane that is larger than the Graphics Windows. We can move the turtle beyond the edge of the Graphics Window also.

LOGO for windows has three graphics modes

☺WRAP.

☺WINDOW.

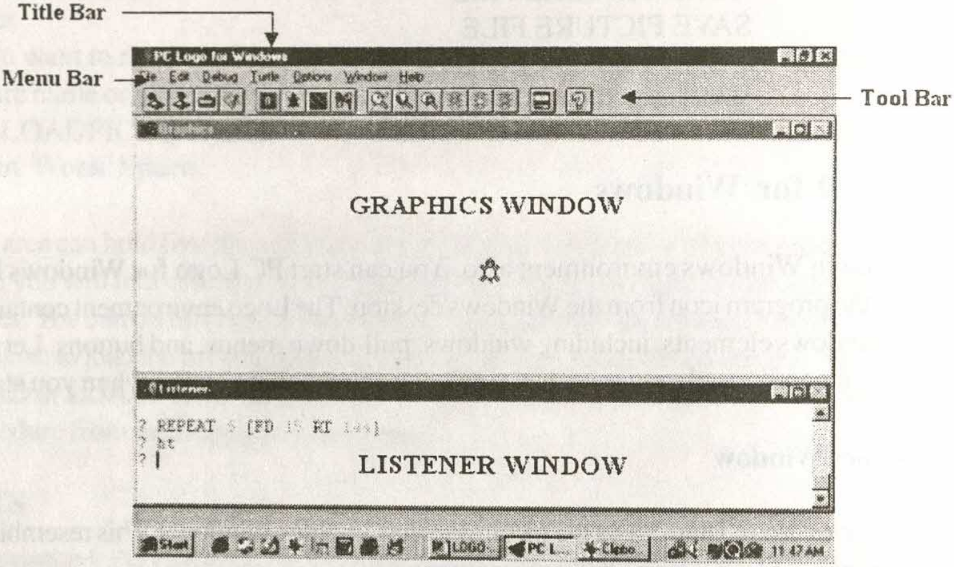
☺FENCE.

The effects of these modes in windows are same as those of in DOS.

The Listener

The LOGO for Windows screen is divided into two major sections. The primitives or your LOGO commands are displayed in the **Listener Window**. It is same as the text area in the LOGO for DOS. In standard layout, Graphics Window occupies about two third of screen and the Listener window occupies the rest. You can change this layout as you like by resizing the graphics and the listener window.

You can get the standard layout again by typing SPLITSCREEN or SS command, choosing Standard Layout from window menu or pressing Ctrl and L key simultaneously.



```
? REPEAT 5 [FD 15 RT 144]
? ht
?
```

LOGO for Windows application window

2.12 The SET primitives in Logo for Windows

All the DOS based Logo primitives perform the same operations on Logo for Windows platform. We will now discuss about some SET commands in Logo for Windows.

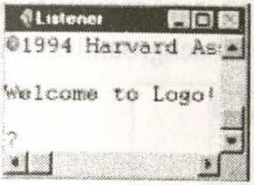
SETATTR

This primitive is used to set the colours of the Listener window.

Syntax: SETATTR <number>

SETATTR sets the color of the text and background in the Listener window according to its inputted colour number, since each colour has a particular number.

If you type SETATTR 30 ,you will find color of the text and background of the Listener window changes to blue.

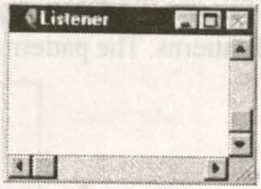


©1994 Harvard As

Welcome to Logo!

?

Listener window
(before applying SETATTR)



Listener window
(after applying SETATTR)

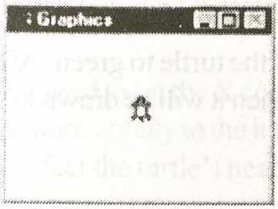
Syntax: SETBG <number>

This primitive is used to set the background color of the graphics screen which is specified by its inputted color number. The first 16 numbers are predefined as follows:

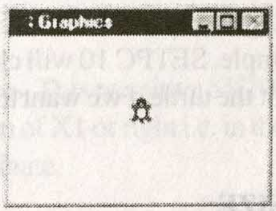
0 Black
1 Blue
2 Green
3 Cyan
4 Red
5 Violet
6 Brown
7 Light Grey
8 Dark Grey
9 Light Blue
10 Light Green
11 Light Cyan
12 Light Red
13 Magenta
14 Yellow
15 White

For example,

If you type SETBG 9 you will find that the colour of the graphics window changes to blue.



Graphics window
(before applying SETBG)



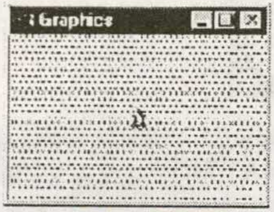
Graphics window
(after applying SETBG)

SETBGPATTERN

This primitive is used to set the background pattern of the Graphics window. This primitive is used exclusively in windows environment.

Syntax: SETBGPATTERN <number>

SETBGPATTERN changes the background pattern to the pattern specified by its inputed number. SETBGPATTERN accepts inputs from 1 to 12 corresponding to the available background patterns. The pattern appears in the current background color.



Graphics window (after applying SETBGPATTERN 10)

SETPC

This primitive is used to set the pen colour.

Syntax:SETPC <number>

SETPC selects a pen color for all active turtles. The color number is an index into the current pallet. The first 16 colors are predefined as follows:

0 Black
1 Blue
2 Green
3 Cyan
4 Red
5 Violet
6 Brown
7 Light Grey
8 Dark Grey
9 Light Blue
10 Light Green
11 Light Cyan
12 Light Red
13 Magenta
14 Yellow
15 White

For an example, SETPC 10 will change the colour of the turtle to green. After changing the colour of the turtle if we want to draw any picture then it will be drawn in the specified colour.

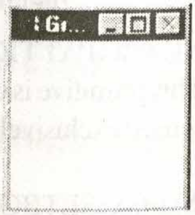
SETWINSIZE

This primitive is used to set the physical size of the Graphics window.This primitive is used exclusively in windows.

Syntax :

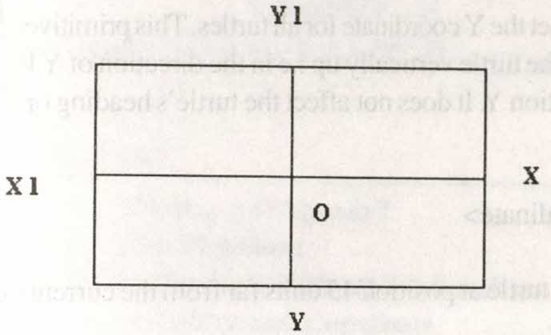
SETWINSIZE <first number(width)> <second number(height)>

Its first number is the width of the window in screen pixels, while the second number is the window height.



E.g. SETWINSIZE 100 100 will change the size the graphics window.

Concept of coordinates :



The X axis (horizontal distance) of graphics screen is 160(XX1=160) units and the Y axis (vertical distance) is 320 units (YY1=320).

The position of any point on the screen is given by two values called its co-ordinates. The first value indicates the horizontal distance from the center of the screen and is called the X coordinate. The second number gives the vertical distance from the center of the screen and is called Y co-ordinate. Depending on the direction from the center these values can be negative or positive.

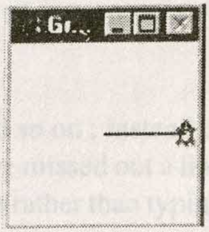
The co-ordinate of the Home position i.e. the point O is (0,0).

With the SETX, SETY and SETXY command we can move the turtle in any point.

SETX

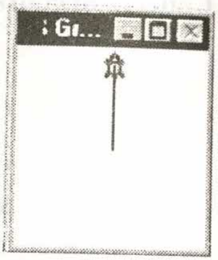
The primitive is used to set the X coordinate for all turtles. This primitive SETX is used to move the turtle horizontally to the left i.e. in the direction of X1 or right i.e. in the direction X. It does not affect the turtle's heading or its Y coordinate.

Syntax: SETX <xcoordinate>



For example, SETX 45 will place the turtle at position 45 units far from the current position horizontally.
So, we can say the co-ordinate of the current position of the turtle is (45,0)

SETY



The primitive is used to set the Y coordinate for all turtles. This primitive SETY is used to move the turtle vertically up i.e in the direction of Y1 or down i.e. in the direction Y. It does not affect the turtle's heading or its X coordinate.

Syntax: SETY <ycoordinate>

SETY 45 will place the turtle at position 45 units far from the current position vertically.

So , we can say the co-ordinate of the current position of the turtle is (0,45)

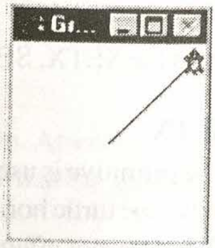
SETXY

This primitive is used to set both the X and the Y coordinates for all turtles

Syntax:SETXY [xcoordinate ycoordinate]

SETXY moves the turtle to the point specified by its input list. The first element is the X coordinate (horizontal); the second, the Y coordinate (vertical).

SETXY [30 30] will move the turtle upto a position, which is 30 units far from the current position of the turtle on the graphics window.



Chapter : 3
Introduction to BASIC Programming

We will learn about

☺ **What is a Program ?**
☺ **Line Numbers**
☺ **Instructions without line numbers**
☺ **Variables and Constants**
☺ **LET command**
☺ **PRINT command**
☺ **INPUT command**

3.1 What is a Program ?

A Program is a step by step instruction given to the computer in a language that it understands, to perform a specific task. Since a program consists of steps, instructions are numbered so that the computer can understand which step is to be executed first and the order of execution.

3.2 Line Numbers

To help the computer understand the manner in which the steps are required to be executed we use line numbers. Each instruction is given a LINE NUMBER. All the program instructions must have a line number, so that the computer can carry out the instructions in the increasing (ascending)order of the line numbers.

Example :

```
10 PRINT    "LET US LEARN"
20 PRINT    "BASIC PROGRAMMING"
```

Now type RUN to get the following output

```
        LET US LEARN
        BASIC PROGRAMMING
```

Why do we use LINE NUMBERS in squence of TENS?

Say, we write a program with LINE NUMBERS as 1,2,3,4,5, and so on ; instead of 10,20,30,40,50...... in steps of 10. We suddenly realize that we have missed out a line between 4 and 5. In this case what do we do? We have nothing to do rather than typing the whole program again and ensuring that the missing line is inserted.

Whereas in the case of line numbers at intervals of tens we can easily insert 9 lines without redoing the whole program.

eg.
```
10 PRINT "KRISHNA"
20 PRINT "MY"
30 PRINT "FRIEND"
```

Say, we have forgotten to insert the word "IS" considering the sentence to be KRISHNA IS MY FRIEND. So we insert LINE 15 at the end of the program.

```
10 PRINT "KRISHNA"
20 PRINT "MY"
30 PRINT "FRIEND'
15 PRINT "IS"
```

Although the line number 15 is inserted after line number 30 the computer carries out instructions in the increasing order of line number. So after processing line number 10 it will first process line number 15 then goto line number 20.

3.3 Instructions without line numbers

Sometimes, instructions can be keyed in without line numbers. For example you can type PRINT statement for performing mathematical calculations without giving line number. The main difference between keying in instructions without line numbers and keying in with line numbers is that :

- Those instructions keyed in without line numbers are executed by pressing ENTER KEY and are not stored in the computers memory.
- All those instructions which are keyed in with line numbers are stored in computers memory when we press ENTER KEY. The computer stores these instructions and are executed only when it is asked to do so.

Let us learn some instructions which work without Line Numbers.

CLS

The full form of this is CLEAR SCREEN. This command wipes out everything from the screen resulting to blank screen. But the instructions in the memory are kept intact.

You will notice that when we switch on the computer we find something written on the screen.

Now, when we key in CLS and press ENTER we find that the screen has became totally blank.

DELETE

There will be some cases when we find that we need to change an instruction at a particular line number or erase some lines.

To change a particular line, we can type out

```
DELETE LINE NUMBER < Enter >
eg.DELETE 40 <Enter>
```

or

```
LINE NUMBER < Enter >
eg. 40 <Enter>
```

Let us see some examples.

```
10 PRINT "KEYBOARD"
20 PRINT "MOUSE"
30 PRINT "JOYSTICK"
40  END
```

Now if we want to delete line number 30 we have to type

```
DELETE 30 < Enter >
```

The program will be :

```
10 PRINT "KEYBOARD"
20 PRINT "MOUSE"
40  END
```

Alternatively, we can also type

```
30  < Enter >
```

NEW

If we want to wipe out all the data we have written and stored in computers memory, then the command which we will use is NEW < Enter >. The earlier programs get erased and the computer waits for new instructions.

AUTO

AUTO command is used to generate automatic line numbers with increments of 10. Generally line numbers start from 10, with subsequent line numbers as 20,30,40, and so on. Theses numbers are graded in an ascending order. Thus typing AUTO would generate the following line numbers :-

```
AUTO < Enter >
        10
        20
        30
```

If you want to start a program from line number 5 instead of line number 10, then type

AUTO 5 and press ENTER key. Now the computer would generate line numbers starting from 5 and increasing at an interval of 10.

```
AUTO 5 <Enter>
5
15
25
```

Whereas, Auto 5,5 would generate Line Numbers starting from 5 and increasing at an interval of 5.

```
AUTO 5,5 <Enter>
5
10
15
```

RUN

Run command is used to execute any BASIC program. We can press F2 instead of typing RUN command. After writing a program it is stored in the computers memory. The program can be executed only if we type RUN after we complete writing the program.

eg.

```
10 PRINT "BASIC IS A"
20 PRINT "PROGRAMMING LANGUAGE"
30 END
RUN < Enter >
BASIC IS A
PROGRAMMING LANGUAGE
```

LIST

List command is used to display the program, in ascending order of line numbers which is currently in the computer's memory . We can press F1 instead of typing LIST command to get listing of a program.

eg.

```
10 PRINT "SAVE THE NATURE"
20 PRINT "SAVE THE PLANET"
30  END
LIST
10 PRINT "SAVE THE NATURE"
20 PRINT  "SAVE THE PLANET"
30  END
```

eg.

```
10 PRINT "MY"
30 PRINT "GAME"
20 PRINT "FAVOURITE"
40  END
LIST
10 PRINT "MY"
20 PRINT "FAVOURITE"
30 PRINT "GAME"
40  END
```

In the above program you will see that the LIST command rearranges the LINE NUMBERS in ascending order.

If you type LIST 30, only line number 30 along with its contents will be displayed.

eg.

```
LIST 30
30 PRINT "GAME"
```

If you type LIST 20, 30 line numbers 20 and 30 along with its contents will be displayed on the screen.

eg.

```
LIST 20, 30
20 PRINT "FAVOURITE"
30 PRINT "GAME"
```

If you type LIST 10 - then line numbers starting from 10 till the end of the program will be displayed on the screen.(" - " is the hyphen symbol on your keyboard)

eg.

```
LIST 10 -
10 PRINT "MY"
20 PRINT "FAVOURITE"
30 PRINT "GAME"
40  END
```

When we type LIST without mentioning any line number and press ENTER, the computer will type out all the instructions stored in its memory. It will also arrange and type out line numbers in an increasing order. It is a very useful command because if your program is not executing the way you want it to, the first thing you should do is LIST and check whether all the required instructions are there or not or whether there has been some error in logic or typing which needs to be modified.

END

This statement is the last statement in any program through which the computer understands,

……………►

that the program in over. Any line number after the line number with the END statement will be ignored when it is executed in the program. Although writing END statement at the end of the program is not compulsory it is always a neat program writing habit ,to use END Statement at the end of a program.

REM

This is a short form of 'REMARKS" But the computer understands it as REM. A remark is an explanation or comment on the type of program or process being carried out for the user.
The word REM is typed before the comment or explanation.

REM is a non executable statement and can be used anywhere in the program and you can use as many of them in a program as you want. The computer ignores whatever follows the REM statement. REM statement only acts as a "Title" or a heading to make a program understandable.

```
10 REM PRINT 10+10
```

will not give an output of 20 as REM is a non executable statement.

eg.

```
10 REM PRINTING NUMBERS
20 PRINT "5+55+555"
30 PRINT 5+55+555
40 END
```

In the above program both REM and END statements are not essential yet we give them to write a neat, complete, understandable program.

3.4 VARIABLES AND CONSTANTS

Variable

A variable is used as a temporary storage. The value of a variable can change while our program is running. A variable can be used to store things like the name of a person, the name of a city, the marks of your exams and so on.

There are two types of variables used in BASIC programming
(i) Numeric Variable
(ii) String Variable

Constant

Sometimes we use certain numbers or strings repeatedly. A constant never changes its value while our program is running.

Let us take an example to understand the concept of variable and constant.
The marks you get in your class every term are variable whereas the number of subjects which you have to study in the particular class remains constant.

There are two types of constants used in BASIC programming
(i) Numeric constant
(ii) String constant

Now we will discuss about the Numeric and String variable.

Numeric Variables

If the variable represents a number, it is called a numeric variable.
For example
A = 9
NUM = 79
AGE = 81
B 5 = - 44
AB6 = 17.8
There are certain rules which we have to remember while using this variable in the computer.

☺ Every numeric variable must begin with a letter. (e.g.A,AGE etc)
☺ Numeric variables can have both numeric or non-numeric data.(e.g. A1,NUM1)
☺ Numeric variable can have more than one character.(e.g.MARKS,AB

String Variable

Just as numeric variable represent numeric constants, string variables represent string constants. String constants are always kept as unchanged information and are enclosed within quotation marks.

Examples of String Variables:

```
LET C$ = "COMPUTER"
LET P1$ = "BOOK"
LET TEMP$ = "42°C"
```

Rules for using String Variables

☺A string variable must begin with a letter.

☺A string variable must end with a $ (dollar) sign.
☺A string variable can have letters and numbers.
☺A string variable can be of more than one character.

Valid Variables

```
A10 = 99
NAM$ = "SANTANU"
SCHOOL$ = "GURUKUL"
MN3$ = "75 COINS"
DOLLAR = 15
```

Invalid Variables

10A = 99 (variable name cannot start with a digit)
NAM$ = SANTANU (Quotation mark missing on the right hand side)
SCHOOL = "GURUKUL" (Dollar sign missing)
3MN$ = "75 COINS" (Variable name cannot start with a digit)
DOLLAR = 150$ (Dollar sign should not be present)

3.5 LET

The LET command or instruction word is used to assign a value to a variable to make the computer accept information.

We should understand that the computer can store constant (numeric or string) in its memory but appropriate variables are required to store these constants.

A variable P can be assigned a value say 100

```
LET P = 100
```

A string variable Q$ can be assigned a variable "SOFTWARE"

```
LET Q$ = "SOFTWARE"
```

An alphanumeric or string variable can be assigned an expression.

```
LET APRIL$ = "30 DAYS"
```

Suppose ,the cost of COKE is 35 rupees and cost of CAKE is 30 rupees. Together , the cost of COKE and CAKE is 35 + 30 i.e. 65 rupees.

To remember it we could even say

```
LET COKE = 35 and LET CAKE = 30
```

What have we done here? We consider COKE and CAKE as two variables whose value are 35 and 30 respectively.

In order to find the sum of these two values, we need to add the contents of memory variable "COKE" with memory variable "CAKE". The sum that we get has to be stored in another memory variable say "TOTAL".

We have a program which looks like this:

```
10 LET COKE = 35
20 LET CAKE = 30
30 LET TOTAL = COKE + CAKE
40 PRINT TOTAL
50 END
RUN
65
```

We can use LET to store string constants

```
10 LET P$ = "HYPER"
20 LET Q$ = "TEXT"
30 LET R$ = "MARK UP"
40 LET S$ = "LANGUAGE"
50 PRINT P$
60 PRINT Q$
70 PRINT R$
80 PRINT S$
90 END
RUN
HYPER
TEXT
MARK UP
LANGUAGE
```

Important points about LET command

- ☺ The variable is always put on the left hand side. (We cannot write 10 "SUNDAY" = DAY$)
- ☺ A string/alphanumeric variable may have letter(s) or number(s) or special character(s) inside quotation marks
- ☺ Always remember that the numeric data which is stored in a string constatnt cannot be used for calculation.

PRINT

The basic function of the PRINT command is to make the computer display the contents written after the word PRINT, on the monitor.

Say a program

```
10 LET P = 235
20 LET Q = 567
30 LET R = P + Q
40 END
RUN
```

What would happen if we run the program, the computer will store the value of R in its memory, you will not be able to see it unless you insert a PRINT statement.

To print the value of R we have to type

```
35 PRINT R
```

Now the computer will display the value stored in R on the screen.

So far we have seen the PRINT command being used to print one item at a time and every PRINT command displayed its contents on a separate line i.e.

```
10 PRINT "INDIA"
20 PRINT "IS A VAST COUNTRY"
```

would display the following when executed

```
INDIA
IS A VAST COUNTRY
```

The PRINT instruction is a very useful and powerful instruction. By using comma (,) or semicolon (;) with PRINT statement we can achieve a display screen as per our requirements. The semicolon is used when we want items written after PRINT statement to be displayed absolutely side by side.

Let's take an example:

```
10 PRINT "INDIA";PAKISTAN"
20 END
RUN
INDIAPAKISTAN
```

The above output looks very confusing.

We have to use semicolon very carefully. If you wish to print two words together then we would separate the two words by adding a blank space after the last character of the first word before closing the quotation mark ie.

"INDIA" can be written with one or more blank spaces at the end of the word "INDIA "

Thus when we run the program

```
10 PRINT "INDIA "; "PAKISTAN"
20 END
```

In the display we will find number of blank spaces have been inserted after the word INDIA and thus give us a neat output.

```
INDIA  PAKISTAN
```

Whenever we use a semicolon after a data the next data will be printed on the same line. See the given example.

```
10 LET P$ = "JOIN"
20 LET Q$ = "HANDS"
30 PRINT P$;
40 LET A = 59
50 LET B = 159
60 PRINT Q$
70 PRINT A + B
80 END
```

On runing this program you will see the following output :

```
RUN
JOINHANDS
218
```

The computer printed P$ first and noted a semicolon after the instruction. So the computer exectues the next PRINT instruction on the same line. Since there is no semicolon after the PRINT Q$, the PRINT command A+B is executed on a new line.

We can also use a comma (,) between items in a PRINT statement such as

```
10 LET M = 75
20 LET N = 15
30 LET A$ = "75 * 15 ="
40 PRINT A$, M * N
```

In which case the display will be more widely spaced out

```
75 * 15 =  1125
```

The Computer screen is divided into 5 vertical zones and when we use a comma between items in a PRINT statement each item get displayed in a separate zone.

So in one line five items can be displayed and thus 4 nos. commas can be used.

For eg.

```
10 PRINT "ZONE 1","ZONE 2","ZONE 3","ZONE 4","ZONE 5"
20 END
RUN
ZONE 1        ZONE 2        ZONE 3        ZONE 4        ZONE 5
```

So a comma and a semicolon are used when we want to PRINT two or more constant, variables or calculations on the same line on the screen.

We can also use the PRINT command without any data

```
10 PRINT
```

in which case it will display a blank line

```
10 PRINT "DOS"
20 PRINT
30 PRINT "WINDOWS"
40 PRINT "UNIX"
50 PRINT
60 PRINT "LINUX"
70 END
RUN
```

```
DOS

WINDOWS
UNIX

LINUX
```

Do it yourself

I. Write programs in BASIC to solve the following problems.

1. Cost of one exercise book is Rs. 6.50. What will be the cost of 12 such exercise books?
2. Cost of 5 pens is Rs. 160.00. What is the cost of one such pen?
3. If the length of a rectangle is 9 c.m. and breadth of the rectangle is 3 c.m. Find out the area and perimeter of the rectangle.
4. A boy has scored 67 marks in English, 88 in Maths, 80 in Computer Science, 95 in Physical Science, 92 in Hist, 75 in Geography. Find out the total marks he has scored.
5. A girl had gone to the market with Rs. 120.00 She brought a pencil box for Rs. 45.00, two erasers for Rs. 6.20 each, pen for Rs. 20.00 and one book for Rs. 56.00. How much did he spend?

II. What will be the output of the following programs :-

1.

```
10 A = 20
20 B = 10
30 C = 25
40 D = A * B
50 E = D/C
60 PRINT "D=";D
70 PRINT "E=";E
```

2.

```
10 LET P = 40
20 LET Q = 35
30 LET R = 15
40 LET S = P+Q+R
50 PRINT "P+Q+R"
60 PRINT S
70 END
```

3.

```
10 A = 25
20 P$ = "PENS"
30 PRINT A ; P$
40 END
```

4.

```
10 M = 28
20 N = 87
30 O = 56
40 PRINT "M x N x O ="
50 PRINT M * N * O
60 END
```

5.

```
10 LET J$ = "JACK"
20 LET A$ = "AND"
30 LET L$ = "JILL"
40 LET W$ = "WENT"
50 LET U$ = "UP"
60 LET T$ = "THE"
70 LET H$ = "HILL"
80 PRINT J$ ; A$ ; L$ ; W$ ; U$ ; T$ ; H$
90 END
```

III. Find out the errors:

1.

```
10 + = 50
20 C$ = COMPUTER
30 PRINT + ; C$
40 END
```

2.

```
10 LET = 55
20 U = 38
30 V = 21
40 PRINT A, U, V
50 END
```

3)

```
10 INPUT  I = 45
20 LET J = 6
30 LET K = I / J
40 PRINT "I / J=" ; K
50 END
```

4)

```
10 PRINT L, B
20 AREA = L * B
30 PRINT "THE AREA OF THE RECTANGLE = A; "Sq.cm"
40 END
```

3.6 Input

In the LET statement we found that a program acts for a particular value of the variables assigned in the program.

```
10 LET P = 555
20 LET Q = 155
30 LET R = P - Q
40 PRINT R
50 END
```

In the above program, variables P and Q have been assigned specific values 555 and 155 repectively and the variable R is assigned the difference of values of P - Q. But if we are interested in the difference of any other set of numbers and not only the set given above then the program using LET statement will not come to any use.Thus BASIC programming provides us with a command through which we can input data several times using the same variable.This command is the INPUT command.

Thus INPUT is an instruction used to enter a character or characters into the computer. These characters can be numbers,letters, any special symbols or combination of all of them.The computer stores these as numeric variable or string variable.

When we use the INPUT statement the computer halts and a question mark (?) appears on the screen for the user to respond. The program gets executed when the user has typed in the valid data.

Input used with Numeric Variables

Syntax:

LINE NO. INPUT <NUMERIC VARIABLE>

PROGRAM	SCREEN DISPLAY	USER'S RESPONE.
10 INPUT P	?	555
20 INPUT Q	?	155
30 LET R = P-Q	--	--
40 PRINT R	400	

When we type RUN the computer displays the output on the screen.

We can run the program as many number of times as we like by giving different responses. We can also give different responses to a single variable during repeated execution of programs.If you run the above program again you can type different set of data as given in the example below.

PROGRAM	SCREEN DISPLAY	USER'S RESPONE.
10 INPUT P	?	666
20 INPUT Q	?	166
30 LET R = P-Q	--	--
40 PRINT R	500	

Input used with Alphanumeric Variables

Alphanumeric variables can also be entered using the INPUT statement.

Syntax:

LINE NO. INPUT <Alphanumeric Variables>

Say, INPUT P$ displays a question mark which requires the user to type in an Alphanumeric character type of data.

PROGRAM	SCREEN DISPLAY	USER'S RESPONE.
10 INPUT M$	?	JACK
20 INPUT N$	?	ROSE
30 INPUT P$		ARE FRIENDS
40 PRINT M$, N$, P$	JACK ROSEARE FRIENDS	

Remember if we are using a numeric variable with INPUT statement our response to question mark should be numeric. In case of an a alphanumeric response to a numeric variable the computer will give a message REDO FROM START. See the example below.

PROGRAM	SCREEN DISPLAY	USER'S RESPONE.
10 INPUT P	?	KEYBOARD
20 PRINT P	REDO FROM START	---

Whereas in case we are using an alphanumeric variable with the INPUT statement our response to question mark should also be alphanumeric. This needs a bit of caution : Numbers that used as alphanumeric.characters cannot be used in calculations.

PROGRAM	SCREEN DISPLAY	USER'S RESPONE.
10 INPUT M$	?	8
20 INPUT N$	?	14
30 PRINT M$+N$	814	--

The two numbers 8 and 14 are not added to give 22 because the computer now considers them Alphanumeric character and by definition Alphanumeric Variables cannot take part in the mathematical calculations.

Using Input to make the computer talk to you

One problem that we must have encountered using the INPUT statement is that we have to keep track of what has to be entered and when.

PROGRAM	SCREEN DISPLAY	USER'S RESPONE.
10 INPUT N1$	?	REETAM
20 INPUT AGE1	?	11
30 INPUT N2$	?	PREETAM
40 INPUT AGE2	?	12
50 LET DIFF = AGE2-AGE1	----	----
60 PRINT N2$ " IS OLDER THAN " N1$ " BY " DIFF "YEARS"		
70 END		

At the end of the program the screen will display:

```
PREETAM IS OLDER THAN REETAM BY 1 YEARS
```

Let us see another program

```
10 PRINT "WHAT IS YOUR NAME?"
20 INPUT N2$
30 PRINT "WHAT IS YOUR AGE?"
```

```
40 INPUT AGE2
50 PRINT "YOUR BROTHER'S NAME?"
60  INPUT N1$
70 PRINT "WHAT IS HIS AGE?"
 80 INPUT AGE1
90 LET DIFF = AGE2 - AGE1
100 PRINT N2$ " IS OLDER THAN " N1$ " BY " DIFF "YEARS"
110  END
```

LINE NUMBER	SCREEN DISPLAY	USER'S RESPONE.
10	WHAT IS YOUR NAME? ?	REETAM
20	WHAT IS YOUR AGE ?	20
30	YOURS BROTHER'S NAME ?	PREETAM
40	WHAT IS HIS AGE ?	18

At the end of the program the screen will display:
REETAM IS OLDER THAN PREETAM BY 2 YEARS.

Input as used with more than one variable

The INPUT statement can be used to type in more than one data item.

eg.

```
10 INPUT NUMBER1,NUMBER2
20 LET SUM = NUMBER1 + NUMBER2
30 PRINT SUM
40 END
RUN
?93,78
171
```

So, you can see the above program will display one question marks and you will give the two variables separated by comma.

You would like to display the name BISHWANATHAN ANAND on the computer screen.

PROG. 1.

```
10 INPUT DATA1$
20 INPUT DATA2$
30 PRINT DATA1$ + DATA2$
40 END
RUN
? BISHWANATHAN
? ANAND
BISHWANATHANANAND
```

PROG. 2

```
10 INPUT DATA1$, DATA2$
30 PRINT DATA1$ + DATA2$
40 END
RUN
? BISHWANATHAN, ANAND
BISHWANATHANANAND
```

Since in Program 1 there are two INPUT statements with a single variable in two different lines , two question marks will appear on the screen,so you have to put the data item against the variable in two different lines, whereas in Program 2 there is only one INPUT statement with two variables in a single line , thus only one question mark will appear on the screen. You have to give the data items against the corresponding variables in a single line separated by comma. In both cases the output will be the same.

So, you can input several data items either through single INPUT statement (Prog1)or through different INPUT statements (prog2) .

Using Print Statement with Input command

PRINT statement can also be used with the above mentioned INPUT statement.

eg.

```
10 PRINT "ENTER TWO NUMBERS"
20 INPUT NUM1, NUM2
30 PRINT NUM1+NUM2
40 END
```

Type RUN and press ENTER key to see the follwing output.

```
ENTER TWO NUMBERS
? 111, 222
333
```

The purpose of this PRINT statement is again the same.

Chapter :4

Windows Operating System

We will learn about

- Why do we need an Operating System ?
- Functions of the operating system
- Graphical User Interface and the Desktop
- Initial screen of Windows
- Multitasking and Task Switching
- Cycling through programs
- Clicking and Double clicking
- Text Box
- Regular List Box
- Drop Down List Box
- Check Boxes
- Radio Buttons
- Files and Folders
- Some common tasks in Windows such as Opening, Closing, Saving, Printing, Copying, Deleting and Finding.
- Buttons in Windows
- Programs or Applications?

4.1 Why do we need an Operating System ?

All of you must have seen buses, cars, trucks on the street. All these vehicles are driven by drivers. A driver is the person who guides the vehicle along the roads and reaches you to your destination. Thus, we understand that a bus cannot move about on its own, but needs a driver to go from one place to another. In other words we can say, that the driver operates the bus.

Similarly, you have seen the computer at work. As you know, that the computer is an electronic machine, it cannot run on its own. So the user i.e. you, need a special program in order to use your computer. This special programs that helps us to use the computer is called "Operating System".

The operating system enables the computer to understand our language or commands, and modifies the commands to the language the computer understands i.e. binary language. The operating system tells the computer how it should work.

When we switch on the computer, the operating system loads itself in the memory of the computer, this process is called "**booting**".

4.2 Functions of the operating system

- The operating system manages the input devices like keyboard, mouse etc. and output devices like monitor, printer etc.
- The operating system manages the memory for storing files and data, reading and writing information from the memory.
- The operating system executes the programs that is given by the user. All the programs you will be using in this class, may it be LOGO, Paint or BASIC cannot be executed without the presence of operating system.

The operating system creates and stores files. It also keeps track where and how the files and folders are stored.

Apart from these the operating system has several other functions which you will learn in higher classes.

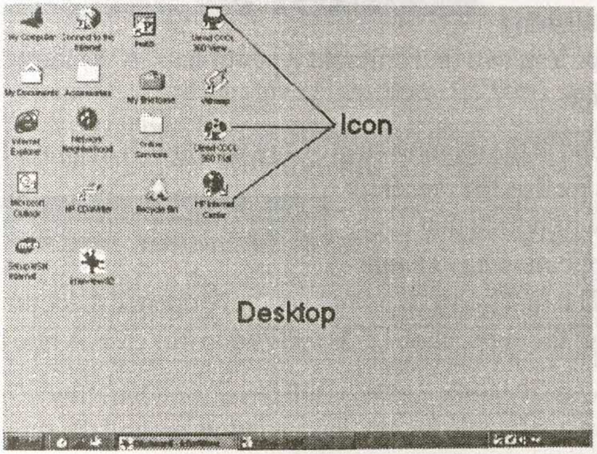
There are many types of operating system available in the market. One of the most popular operating system available for use with personal computers is Windows. Windows is so called because, all the programs (applications) run (execute) in boxes which look similar to windows.

This operating system was developed by Microsoft Corporation of USA. Previously personal computers used another operating system called DOS, also developed by Microsoft Corporation, USA.

Let us know a little more about DOS. DOS stands for DISK OPERATING SYSTEM. This operating system was stored in a floppy disk and could be used from the same disk. While working with DOS, the user had to remember the commands or instructions in order to communicate with the computer. The user interface was command based i.e. one had to type in the instructions to the computer in order to get the work done.

4.3 Graphical User Interface and Desktop

The way we communicate with the computer is called **Interface**. The earlier operating system DOS used a Command Line Interface. Users typed commands into the computer and computer could execute it. If the computer was unable to do so, it displayed an error message stating the cause of failure.



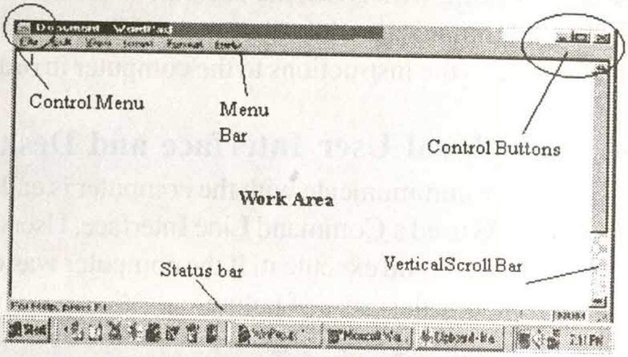
Desktop

The first initial screen of the windows is know as "**Desktop**". When we first start Windows, we see the desktop. This is the starting place of our work. A desktop can be compared to our table top or desk. Just as our table contains pens, pencils, notepads, waste bin, the computer desktop also contains various computer applications or programs.

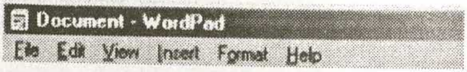
Windows uses a Graphical User Interface. A graphical user interface is also called GUI pronounced as 'gooey' not 'guy'. Users communicate with the computer through little pictures or graphical symbols called "**Icons**". Windows operating system fills the screen (Desktop) with icons. You have to select icon available on the Desktop and click on it to find out what program each offers. For example, when you choose the Printer icon which is a little picture of a printer, you can make your computer print something. Similarly if you choose the floppy icon you can save your work on your floppy disk.

4.4 Initial screen of Windows

In the picture beside we see some of the parts of a window. A window is a box in which an application runs. All windows have some common parts such as Bars, Control Menu, Work Area and Cursor. First of all we will discuss about the different bars of Windows operating system and its application. You will notice that Windows operating system and its applications are filled with bars. Bars are simply thick strips running along the edge of a window. You will find different types of bars in Windows like Scroll Bar, Menu Bar, Task Bar etc.



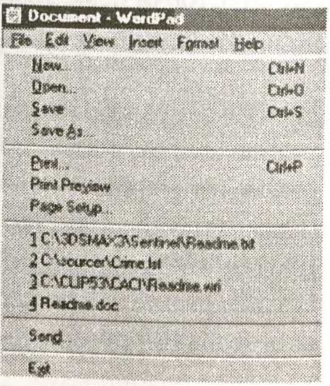
The Title Bar: This is found at the topmost strip of any window. It displays the name of the current application as well as the presently active file. for e.g. You will notice that every window of WordPad Application has a name - **Document – WordPad**. The first part tells us that you have opened a document and the next part tells us the name of the application i.e. **WordPad** in this case.A title bar helps us to identify an application.



The Title Bar can also serve as a handle for moving a window around the screen. You can try this by pointing at the Title Bar, holding the mouse button and moving the mouse around. As you move the mouse you will notice the outline of the active window moves. When we are working on a window, its Title Bar is highlighted.

Menu Bar :

The menu bar consists of menus. A menu is a user friendly way of doing things without having to remember commands to operate on files like opening, saving, closing etc. Windows uses menus. A menu bar consists of options that are usually hidden, until the user clicks on them or presses a letter associated to activate it. Let us see a typical menu of WordPad application.



We see different options on the menu bar like 'File', 'Edit', 'View', 'Insert', Format and Help etc. These menus have other options that are hidden from view until we click on them or press the Alt key alongwith the letter underlined in the menu option. For example to activate the 'File' menu we would point the mouse pointer to the 'File' option and click on it or press the Alt and 'F' keys together on the keyboard. This would display the drop down menu of the 'File' menu.

The menu on the left is called a pull-down menu. To select the options from this menu we follow the same procedure as above. To deselect a menu option, press the Alt key or Esc key from the keyboard, or click anywhere outside the menu.

Scroll Bars:

Where do you find scrollbars? You will find scrollbars in Windows applications like word processors, paint application, spreadsheets and all those applications, where the information would not fit in the entire screen. What do you do when you want to see the text that flows beyond the bottom of the screen? You click on the vertical scroll bar present on the right edge of the window. Scroll bars are of two types; (a) Vertical Scrollbar and (b) Horizontal Scrollbar. Both scroll bars have arrows at their ends. Clicking on them, moves the text. If you click the arrow present on the top edge of a vertical scroll bar, then the text will move down, and if you click on the arrow present at the bottom of the vertical scroll bar, the text will move upwards. This is quite similar to the elevator. The horizontal scrollbar on the other hand, is present on the bottom edge of the screen. Like the vertical scroll bar, the horizontal scrollbar also has two arrows, one on the right side, the other on the left side. Clicking the right arrow moves the text left, and clicking the left arrow moves the text to the right. You will find how to use the scrollbar when you learn WordPad.

TaskBar

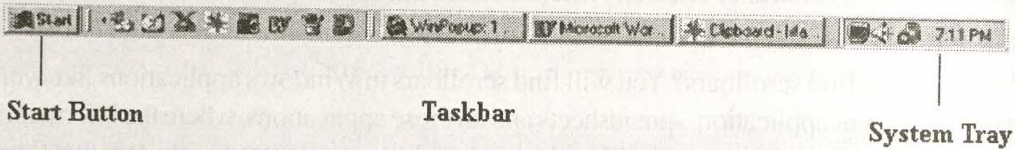
At the bottom of the screen we find a bar (see the picture) below. This is called the "**Taskbar**".

The Taskbar lies along the bottom of the screen simply lists whatever windows are currently open.

The small button at the left hand corner is called the "**Start**" button. Clicking here, we get a list of all the programs available in our computer.

What happens when you open several applications? The Task Bar automatically shrinks all the buttons so that they will fit within it. Say you are working on an application and want to switch to another application, you can click on the desired applications name from its button on the Task Bar. That application immediately becomes the active window and is displayed on top of other windows.

The application(s) that are currently active are shown next. On the extreme right hand corner we have the "**Clock**". On the left hand side of the clock we have some small icons that called "Systray" icons. Some of the most common icons found here are the "Display" and "Sound" icons. We can move from one application to another by clicking on the name of the application on the Taskbar with the mouse or pressing the "ALT+TAB" keys on the keyboard together. You have just seen that Windows operating system converts the computer monitor's screen into a Desktop,



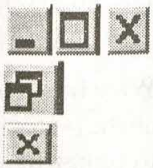
Control Menu :

Almost all Windows applications have a set of buttons present at the right end of the title bar which is known as control buttons. They are a found as a set of three consecutive buttons as shown below:

The first button is called the "Minimize" button. Clicking on it once, makes the window disappear and then reappear as an icon on the Taskbar along the bottom of the screen. (You can click an icon of the window on the Taskbar to return it to its original size). You must understand, that minimizing a window does not destroy it, it merely transforms the window to a little button on the Taskbar at the bottom of the screen.

The second button (middle) has two functions. If the window is maximized, i.e. it takes the full screen, then it looks like the picture on the left. Clicking on the button when the window is maximized returns it to the size, it was before being maximized. If the window is not maximized, then it has the picture as shown above. Thus, we see that as soon as we maximize a window, the maximize button changes to the restore button.

The last button (right) is the "Close" button. Closing a window means removing the window from the computer's memory. In order to reopen it, you need to load it from your hard disk drive again. Whereas, in a minimised state, the window is turned into an icon on the Taskbar, which can be easily handled, it also exists in the memory and ready to use at a moments notice.



Work Area :

The work area is the place, where we actually type in our text.

Cursor :

Cursor appears only when Windows is ready to type text, symbols or numbers on the screen, you can see it while writing a letter in word pad.

You will notice that the cursor and the mouse pointer are different things altogether. They also perform different tasks. When we start typing, the text appears at the cursor's location and not at the mouse pointer's location.

By using the keyboard's cursor control keys you can move the cursor to a new place in the document. Again you can also point to a location on your document with the mouse pointer and click the button, the cursor immediately leaps to the new spot.

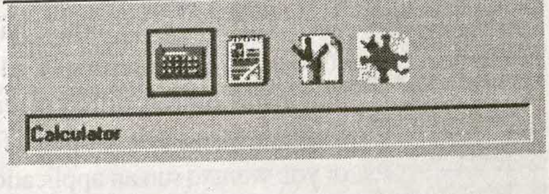
How do you distinguish between the cursor and the mouse pointer? Cursor always blinks steadily whereas mouse pointer never blinks and another differernce is, the mouse pointer usually looks like an arrow head while a cursor is a tall thin line that blinks.

Do it yourself:

First open the Calculator, WordPad, and Paintbrush applications and minimize all of them to store them on the Taskbar.

4.5 Multitasking and Task Switching

Windows can run two or more programs at the same time. When you run two or more programs and switch back and forth between them, you are Task switching. Say you are reading a story book and you feel like listening to music on your FM radio; you put the book aside and start listening to the music. Thus, you are task switching; stopping one task and starting another. This is similar to working with your word processor and then stopping to look up a calculation in the Calculator application.



But, when you run two programs simultaneously, the process is known as Multitasking. Say you are reading a book and listening to the music at the same time, would mean multitasking. In Windows operating system, multitasking is when you are drawing a picture using the Paint application, while printing a letter through your printer.

4.6 Cycling through programs

When we use Windows, we usually work with more than one application at the same time. We can see all the active windows minimized in the Taskbar apart from the one that we are currently working with. To move from one windows (application) to another, we can click on the application icon on the Taskbar with the mouse use the following key combinations of **Alt+Tab**. Keeping the Alt key pressed, we press the Tab key to see the active application on the screen.

This lists all the current active applications along with their names. The currently selected application is enclosed in a box. To switch to the particular application, leave the Tab key and it becomes your currently active application.

Alternatively you can use the Alt+Esc. keys from the keyboard to cycle through the application icons from the Taskbar.

4.7 Clicking and Double clicking

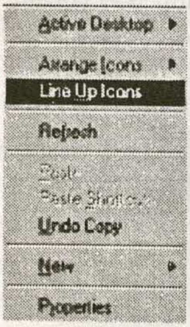
In Windows OS there is a great significance on a very simple thing : Pressing a button on the mouse and releasing it.

Pressing and releasing the button once is known as **clicking**.

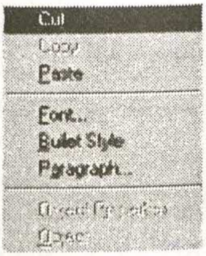
Pressing and releasing the button twice in rapid succession is known as **double clicking**.

Remember : A double click will take practice to master, because if you click too slowly, Windows thinks you're clicking twice, not double clicking.

When to click and when to double click.



By clicking, we usually mean that we have the mouse in our right hand, and we click the left mouse button with our index finger once. But since the mouse has more than one button (two or three sometimes), clicking the right mouse button has entirely different reactions under Windows. Suppose you want to open a folder from the Desktop or you want to run an application, then you would click on the icon of the program or folder on the Desktop. But, if you righ click on an empty space on the Desktop, you will find a menu. This is usually called 'context menu' and it changes depending on the application.



The picture shows the context menu that is displayed when we right click on the Desktop (left).

Again right clicking anywhere in the work area, in WordPad, might have a different meaing altogether, see the picture (right) and you will understand.

We click when we want to select an item like an icon from the Desktop, or a menu or one of the buttons on a window. We move the mouse pointer to the selected area and click the left mouse button once. We also click and drag to select text in a document.

When we want to open a program or a folder for example from the Desktop or from Windows Explorer, we double click. To double click, we need not select the item, but point the mouse pointer directly at the item and double click.

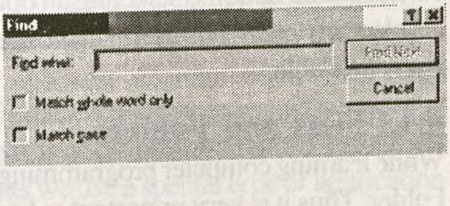
4.8 Text Box

A text box resembles the "Fill in the blanks box", where you have to type and fill in with appropriate words or numbers.

On many occasions such a dialog box (text box) pops up when we want to search for some words or characters in any application like WordPad. When we type in the words that we want to search in the 'Find what' box, and press the Enter key, WordPad searches the document for the text. If it finds the word or words in the document, it highlights the words that you are searching. If WordPad is unable to find the text, it gives a message stating so. Before we start typing inside the text box, you must ensure that it is active. If a text box is active, then we see the cursor blinking inside the box, which implies we can start typing.

4.9 Regular List Box

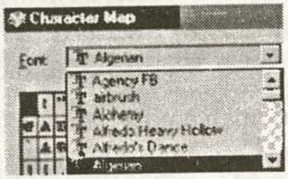
Regular list boxes contain boxes that do not allow us to type anything in them. They already contain information. These boxes containing lists of information and are thus appropriately called list boxes. Let us take an example. Click on Start | Programs | Accessories | System Tools | Character Map in Windows 98 or Start | Programs | Accessories | Character Map for Windows 95. You will see the font selection drop-down list box on the left hand side. Click on the down arrow at the right edge to see the list of fonts. You can move the dark bar (highlight) clicking the arrows or using the mouse and selecting the desired font. Note that you cannot type in the name of the font here.

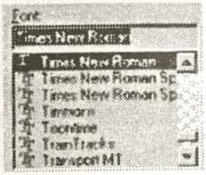


Thus, a list box does not allow us to type in our selection, whereas a drop-down box does.

4.10 Drop Down List Box

List boxes are convenient, but they take up a lot of space. So they are kept hidden just as pull down menus. When we click the downward-pointing arrow located at the right edge, we get several options. We can either use the keyboard, or the mouse to select our desired option.



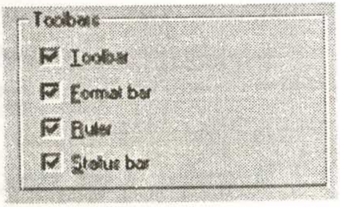


Unlike regular list boxes, drop down list boxes don't have a text box above them. Then one that looks like a text box just shows the currently selected item from the list, we can't type anything there.

To find your option quickly from a drop-down list box, press the first letter of the item you are searching for. All the items beginning with that letter is instantly highlighted. You can press up and down keys to find out your option.

4.11 Check Boxes

A check box allows us to select number of options in a dialog box. A check box is next to each option, if you want that option, you click on the box, if you do not want the option, you do not click on it i.e. leave it blank. (Using the keyboard, you use the arrow keys to move from one option to another and use the spacebar to select or deselect an option.) Let us see the picture to understand the same. The picture shows a part of the 'Option' under 'Word' of the WordPad 'Options' dialog box. From here we can select what toolbars are visible on the screen. Clicking on the boxes select those options and a checkmark ■ is shown beside the options.



Toolbars

☑ Toolbar

☑ Format bar

☑ Ruler

☑ Status bar

4.12 Radio Buttons

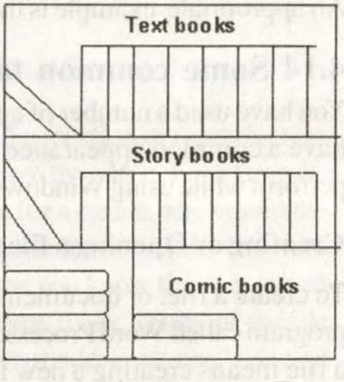
The radio-buttons are similar to check boxes, but there behaviour is slightly different. In case of Radio buttons, selecting an option from a group will select a particular option and deselect any other. It is useful in those cases where we need to make only one choice from many available.

4.13 Files and Folders

While learning computer programming you will very often come across the words File and Folder. Thus it is very important to have a clear understanding of these two words. Let us try to understand with a real life example.

Let us say you have three categories of books in your house i. Text Books ii. Story Books iii Comic Books. You are surely to keep them in a Bookcase and definitely in different shelves as shown in the diagram. Keeping the books in different shelves categorywise will certainly help you find them out whenever you require them for reading. Moreover you are not supposed to keep any other items in your bookcase like CDs or Sports equipment etc for which again you will need different furniture like a CD Cabinet or a Sports Cabinet

Book shelf



Thus in this case the entire bookshelf can be compared with a Folder, each of these shelves as subfolders and each book can be compared to a file. Although all books are to be kept in the Bookcase, different types of books are to be placed at different shelves within the Bookcase.

Let us now discuss about a computer file . Suppose on Monday your English Teacher asks you to write an essay on your pet both on your Essay Copy and type it in your computer. You must be having a separate copy for writing essays ,similarly you have to create a Folder and can name it "Essaywriting" so that you can store your essay in a file called "Pet" .On Tuesday you teacher again asks you to write an esay on say "Flowers"; you may type your essay in a a new file called Flowers under the "Essaywriting" folder.

In this way you can write different essays and store in a common file so that when you want to search them out it would be very easy. So we can say a file is a place where we store information.

Wheras say your Science Teacher gives you notes everyday on different topics.It would not be desirable to store them in the essaywriting folder.It would be advisable to create another folder say with a name Sciencenotes where you can store notes on different topics for eg. plants, stars, planets, etc.

A file on the computer can store information permanently (on a disk). To recall it later, we need to name the files. Files should be named in such a way that it becomes easy for the user to find it out whenever required.

You can name a file with a maximum length of 255 characters.

We can create files in different ways. We use different applications to create different files. For example, to create letters, invitations, documents we use a special type of application called word processor. To create slide shows, presentations and animations we use a presentation software. In order to create charts and sheets we use spreadsheet application.

Thus for different needs, we have different applications. We can also create pictures in our computer. To create pictures we use yet another type of software called painting or drawing software. Windows operating system comes with its own painting software called **Paint** or **Paintbrush**

There are also some applications that do not create files, but help us in some other way. An appropriate example is the **Calculator** application.

4.14 Some common tasks in Windows

You have used a number of applications under Windows. You will find that most of them have a common appearance and behaviour. Some of the most common tasks that we perform while using Windows can be summarized below :

Creating or Opening a file:

To create a file, or document, such as for typing a letter or invitation, we use a special program called Word Processor, like WordPad that you will use in this class. Here creating a file means creating a new file (blank document) or opening a file means loading an existing document or file. To create a document click on **F**ile | **N**ew. You will find a blank screen wortly for you to key in. To open a document, click on **F**ile | **O**pen. It shows us a dialog box showing a list of files and folders. Now we can select one of the files to open for further editing or printing.

Saving a file:

Saving a file, usually implies storing the file into the disk for later use. We can store a file in a folder. After we have created a file with the required information, we save the file for future use. One interesting fact here is, that we can store the same file in different names in the same folder so that we can make changes in one without having to touch the original file. This is usually done through "Save As" option. Under WordPad, Click on **File | Save** or **File | Save As** to save the file.

Closing an application:

After you have finished working on an application it is absolutely necessary for the user to close the application.Under Windows, most of the applications that we use have the control menu. Another alternative to close an application is to use the 'Exit' or 'Quit' option from the 'File' menu, where it is most commonly placed. For example, to close WordPad, click on File | Exit. This will close the WordPad application. Please note that if you have not saved the file prior to closing, WordPad will inquire if you want to do so now, before closing the application.

Printing a file:

Printing is another very important feature of most applications. We can print greetings cards,letters documents ,books, calculations ,charts or you name anything from our computer through the help of a printer. Printing means transferring the output or information from the computers' disk to paper using a device called Printer. It is worthwhile to note that to print, a printer needs to connected to the Computer.

Copying a file:

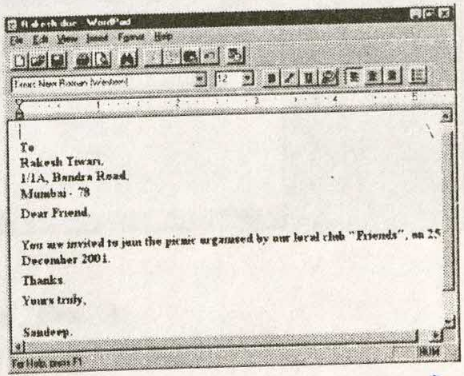
What do we understand by the word "Copy" ? Copy means duplication or reproduction of the original. When we copy a file, we make a exact replica of the same. For example, you have written a letter to your friend 'Rakesh' inviting him for a picnic, and stored the letter in a file called "**Rakesh.doc**". Now, you want to invite your friend 'Amit' and want to send him a similar invitation letter. So what do you do? Since you know the contents of the letter will remain the same instead of rewriting the letter you make a copy of the file 'Rakesh .doc' and name it as say 'Amit .doc'. Now you open the 'rakesh.doc' file and make the necessary changes and you are through. We must remember that Windows operating system does not allows two files of the same name (including the extension) to be stored in the same folder. Hence, we can copy a file in the same folder with a different name. Another reason for copying files is to make backups i.e. you save the file in a different folder so that if the original is destroyed or damaged, we can use the backup file.

Copying a file using "Save As":

We have already seen how we can save and copy files. But, we can copy a file using the **Save As** option too. When do you copy using "Save As" option. Suppose, you have invited your friend Rakesh for a picnic and you also want to invite Amit. Now, you have already created the invitation for Rakesh in "rakesh.doc". You open the file and choose the "Save As" command and save the file as "amit.doc". Now you open the file "amit.doc" and insert the address and name Amit instead of Rakesh.

Let us see an example to understand the same. You can see the contents of the file "Rakesh.doc" as shown in the picture.

As you can see, the contents and the name of the file is related to your friend "Rakesh". Now, you use the "Save As" option to save the file with a



To
Rakesh Tiwari,
1/1A, Bandra Road,
Mumbai - 78

Dear Friend,

You are invited to join the picnic organised by our local club "Friends", on 25 December 2001.

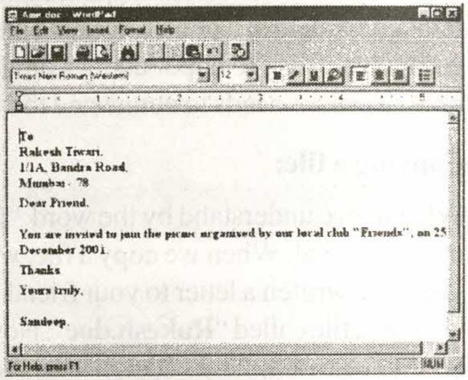
Thanks

Yours truly,

Sandeep.

new name “Amit.doc”. You will see that after saving, the contents of the file “Rakesh.doc” has been totally copied into the new file “ Amit.doc”.

Thus the the contents of the two files “Rakesh.doc” and “Amit.doc” are the same. Now, you just have to change the address of Rakesh in the “amit.doc” file to send the letter to Amit.



To
Rakesh Tiwari,
1/1A, Bandra Road,
Mumbai - 78

Dear Friend,

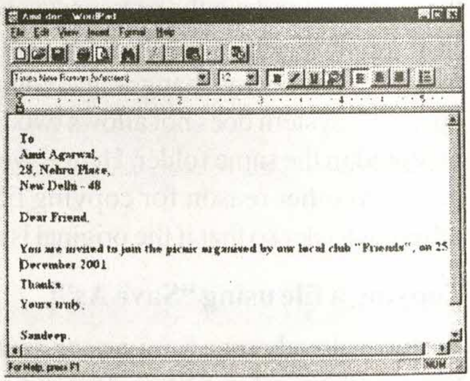
You are invited to join the picnic organised by our local club "Friends", on 25 December 2001.

Thanks

Yours truly,

Sandeep.

The address of the invitation letter has been changed to that of your friend, Amit .



To
Amit Agarwal,
28, Nehru Place,
New Delhi - 48

Dear Friend,

You are invited to join the picnic organised by our local club "Friends", on 25 December 2001

Thanks

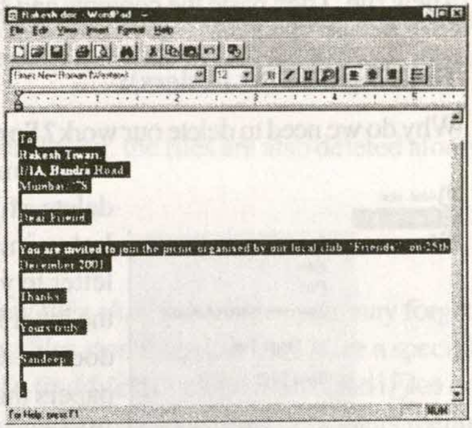
Yours truly,

Sandeep.

Another way to copy files is by copying text from one file and pasting the copied text into a new file.

☺ Open the file " Rakesh.doc" from where you want to copy the text.
(You have already learnt how to open an existing file)

☺ Select the whole text by using **Edit | Select All** command or press the **Ctrl and A** keys together on the keyboard.



To
Rakesh Tiwari
11/A, Bandra Road
Mumbai - 78

Dear Friend

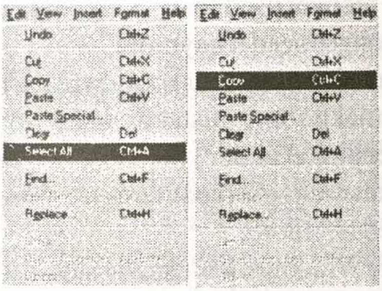
You are invited to join the picnic organised by our local club "Friends" on 25th December 2001

Thanks

Yours truly

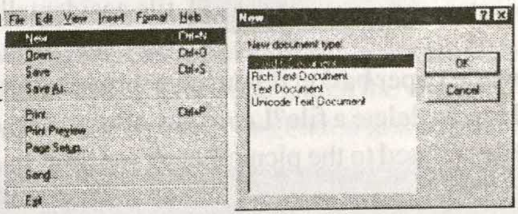
Sandeep

☺ Choose **Edit | Copy** command to copy the contents to the clipboard or press **Ctrl** and **C** key together on the keyboard.



☺ Choose **File | New** or press **Ctrl and N** keys together on the keyboard to create a new blank document.

A New box will appear on the screen displaying the lists of document type.

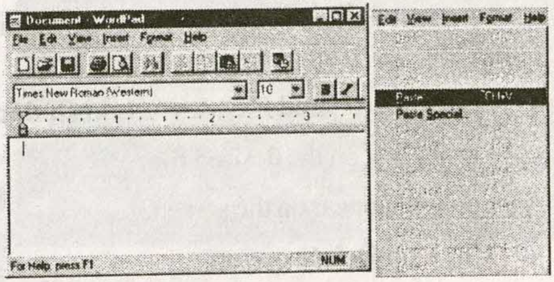


You have to select the type of the document that that you want to create.

☺ Select **Word 6 Document.**

☺ Click on **OK** button.

You will find a blank screen will appear on the screen.


Document - WordPad
File Edit View Insert Format Help
Times New Roman (Western)
10
For Help, press F1
NUM
Edit View Insert Format Help
Paste Ctrl+V
Paste Special...

☺ Choose **Edit | Paste**. or press **Ctrl** and **V** keys together on the keyboard.

You will find that the contents of " rakesh.doc are inserted in the new file.

☺ Choose **File | Save** and give a name "Amit"
(WordPad will automatically take an extension as ."Doc".)

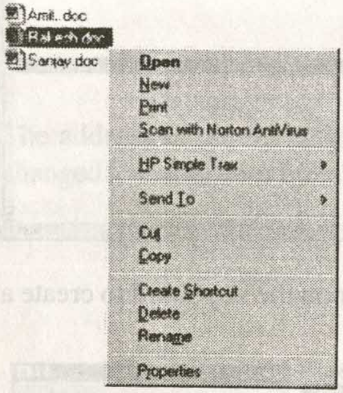
☺ Delete the address of Rakesh .

☺ Type in the address of Amit.

Thus , we get the same result which we acquired through "Save As" option

So we can create a new file with a little modification with the help of **copy-paste** feature. Note : You can also copy a file or part of it by selecting the text from one file and opening a new file. Then paste the contents and save the file. This is another easy way to copy files.

Deleting files (or folders):



Why do we need to delete our work? Sometimes it becomes necessary to remove unwanted files from our hard disk to recover used space. Or you may delete a file when you no longer need it anymore.

Let us imagine that you are sitting in your room writing a letter to your friend. You make some mistakes and throw the letter in the waste paper basket under your table. What does the waste paper basket contain? It contains all those papers that you do not need anymore.

When we delete a file under Windows, it is usually stored in the 'Recycle Bin'. The "Recycle Bin' is a special folder where, deleted files are stored. In case you have deleted a file accidentally, you can easily recover the same from the 'Recycle Bin'. Just as you might take out a paper from the waste paper basket if you have thrown a paper by mistake.

How to delete a file?Let us say after your picnic is over you do not require to retain the files related to the picnic.Let us see how to delete the file **"Rakesh .doc"**

☺ Open the Folder "Picnic" by double clicking on it.[since rakesh.doc is located in the Folder "Picnic"].

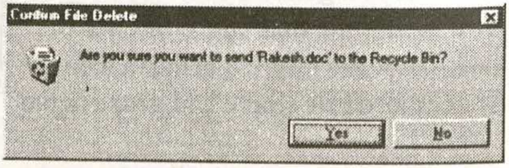
☺ Select the desired file , say **"Rakesh.doc".**

☺ Right click on the desired file.

A menu will appear on the screen.

☺ Click on **Delete** option.

A message box will appear on the screen.



Are you sure you want to send 'Rakesh.doc' to the Recycle Bin?

Then Windows prompts you with the following question.

"Are you sure you want to send "Rakesh.doc" to the Recycle Bin?"

If you answer 'Yes' here the file is deleted i.e the file moves to the 'Recycle Bin'. If you click on the 'No' button, the file remains as it is.

Similarly you can delete the file amit.doc or any other unwanted files.

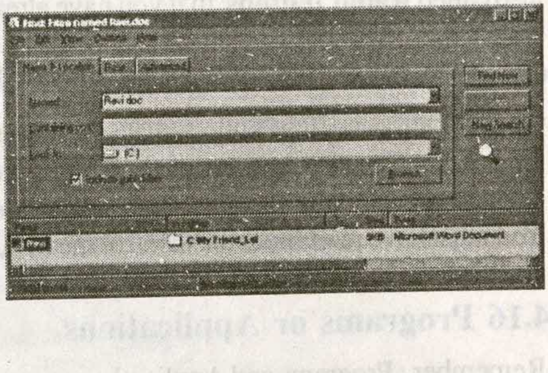
To use the keyboard for deleting a file, you select the file, then press the **Delete** key on the keyboard. Then Windows prompts you with the same question as before. If you click on 'Yes' the file is deleted else it is not.

Note: If you delete a folder that contains file in that folder, the files are also deleted along with the folder.

Finding files or folders:

With time, you will see that you have created many files. And sometimes you may forget where you have stored them. To help us in finding files stored on disks, we have a special program called "**Find Files**" under Windows. To find files, click on Start | Find | Files or Folders or you can go to Windows Explorer and click on the Find | Files or Folders menu options, to see the following screen.

You type in the names of the files to search in the box called 'Named'. If you want to search for some text in the files, you can also type in the same in the "Containing text" box. At the last box you specify the folder you want to search the files. If you are not sure, you can specify a drive like **C:, D:** etc. so that **Find Files** program will search the whole disk for that particular file. After entering all the data, click on **Find Now** button to start finding the desired file(s).



Let us take an example to understand the same better. You have already created a file called 'ravi.doc'. Now, suppose you cannot remember if your friend is from the school or from your neighbourhood and you cannot find it in the folder where you store the letters written to your friends, **Find Files** option will help you to find the file.

After the file is found, we can see the name of the file, the type, the size (in KilobytBytes), the data and time it was created. If the file you are trying to find, is not found, you will not see any such details. This means that either the file does not exist or the name you have typed is not matching.

4.15 Buttons in Windows

There are basically three types of buttons used in Windows operating system:

a) Command buttons
b) Option buttons
c) Control buttons

Command buttons:

Command buttons are most commonly found in dialog boxes. By selecting a command button. you are telling Windows to carry out the command that is written on the button. For e.g. buttons with labels like **OK**, **Cancel** are the most commonly found command buttons.

You will see the OK button is displayed with a slightly darker outline than others. The dark outline implies the button is highlighted. Anything in Windows that is highlighted takes effect as soon as you press the Enter key. You need not select it. You will find some command buttons with underlined letter. An underlined letter implies that you can press that command button by holding down the ALT key while pressing the underlined letter.

Option buttons:

There are certain times where you have to choose a single option out of many. These are also called **Radio buttons**, that you have already learnt earlier.

Control buttons:

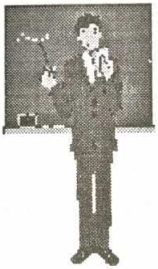
Control button are three buttons that are present on the extreme right edge of all Windows application. The three buttons are specifically used for three functions, the first to minimize a window, the middle to maximize or restore the window and the last to close the window. You must have read about the Control menu buttons earlier in the chapter.

4.16 Programs or Applications

Remember : Programs and Applications are one and the same thing. In fact the software which worked on DOS were called Programs and the software which run on Windows is called Application.

Chapter : 5
Working with Paint

We will learn about



- **Introduction**
- **How to start Paint Application Program**
- **Menus in Paintbrush Application**
- **File menu**
- **Edit menu**
- **Rotating a picture**
- **Pick Tool**

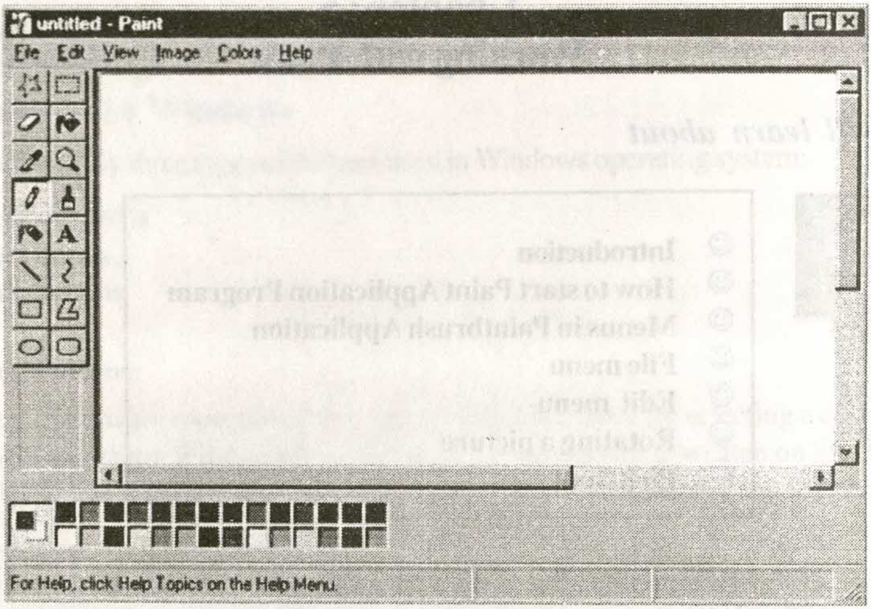
5.1 Introduction

You must have drawn pictures on your drawing book; either sketches using your pencil or made paintings with the help of a painting box and different size of brushes. Windows offers you an application to draw pictures on your computer screen with the help of various tools available with a software application known as **Paint**. Apart from drawing various geometric shapes , free form patterns, and using various painting tools one can also insert text in the form of messages, captions etc.

5.2 How to start the Paint application program?

- Click on the **Start** button on the taskbar. This will display the content of the **Start** menu.
- Highlight the **Program** option. Program menu will open.
- Highlight on **Accessories** option in program menu. The Accessories menu will open.
- Click on the **Paint** application in the Accessories menu.

You will find the **Paint** application window appears on the screen.



For Help, click Help Topics on the Help Menu.

Let us discuss about the various components which are found on the initial Paint application screen.

Title bar	**Title bar** is found at the top of the window. We will find the name of the application "Paint" and the name of the current file, on which we are working, being displayed on the **Title bar**.
Menu bar	Just below the Title bar you can find the **Menu bar**. Menu bar consists of six menus, viz. **File, Edit, View, Image, Option, Help**. We use various options found in the menus to perform various action on our drawing or file.
Work area	**Work area** is the space which is used to draw pictures or write texts. By default this space is white in color, but you can change the colour also as per your requirement.
Tool box	A feature called **Tool box** is found on the left hand side of the work area. It provides us with all the tools to draw pictures, paint pictures, edit pictures, write texts etc.
Color Palette	You can see the **color palette** at the bottom of the work area. You can choose any colour to make your picture a colourful one.

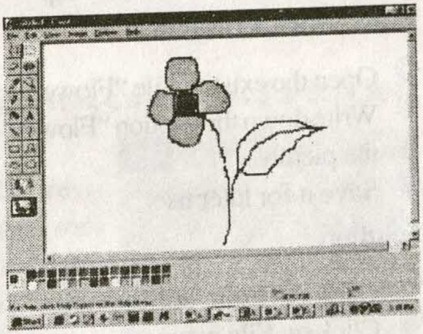
5.3 Menus in Paintbrush Application

There are several menus in a paintbrush such as **File,Edit , View, Image, Colors and Help.**

There are many options available under each of these menus to perform various tasks.

5.4 File menu

We will find several options under **File** menu, such as **New, Open, Save, Save As, Print Preview, Page Setup, Print** and **Exit.**



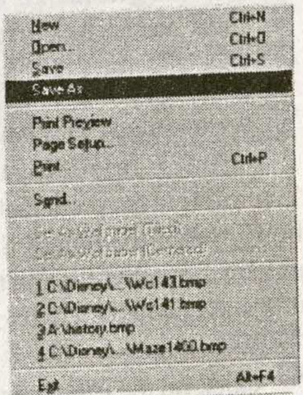
New option is used to open a new file.

Open option is used to open an existing file.

Save option is used to save a file for later use.

Exit option is used to quit from Paintbrush application.

Let us understand the function of different commands by solving different problems.



Class Work Problem 1

- ☺ Open a new file.
- ☺ Draw a picture of a flower.
- ☺ Save the file with the name "Flower"
- ☺ Exit from the Paint application.

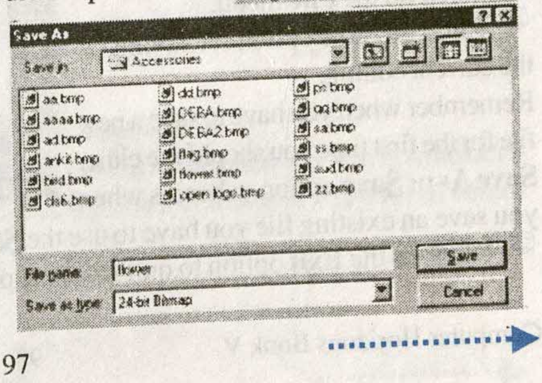
Solution

- ☺ Click on **File** menu under Paint application for opening the various options of **File** menu.
- ☺ Click on the **New** option.

You will find a new blank screen for you to draw a picture.

Now let us draw a picture of a flower with the help of pencil tool.

- ☺ After drawing the flower, click on **File** menu.
- ☺ Click on **Save As** option.
- ☺ The **Save As** dialog box will appear on the screen.

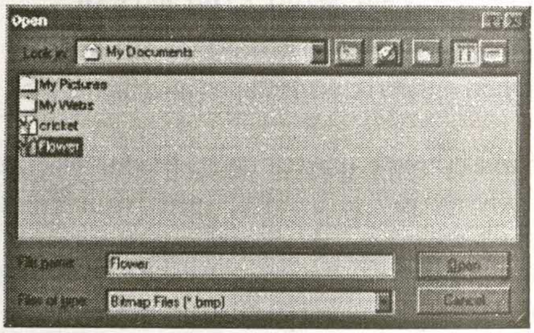


File name: flower
Save as type: 24-bit Bitmap

- Write down the file name "Flower" in **File name** box.
- Click on **Save** button.
- Click on **File** menu.
- Click on **Exit** option to quit from Paint application.

You will notice that it is not required to write the extension name after writing the filename. Windows will by default give the extension of the painbrush file as '**.bmp**' itself. The extension name'.bmp' stands for **bitmap pictures**. i.e. full name of your file that you have already created , is "Flower.bmp"

Class Work Problem 2



File name: Flower

Files of type: Bitmap Files (*.bmp)

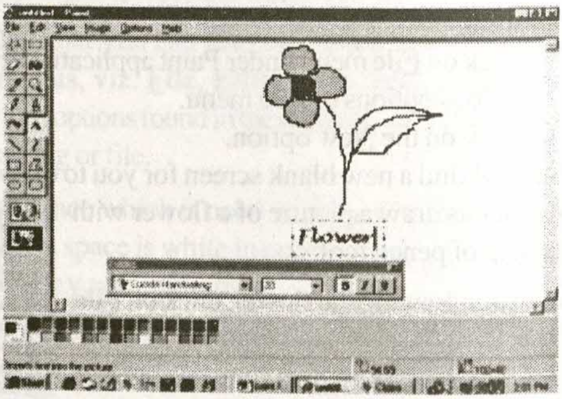
- Open the existing file "Flower".
- Write down the caption "Flower" below the picture.
- Save it for later use.

Solution

- Open the **Paint** application.
- Click on **File** menu.
- Click on **Open** option to open the existing file "Flower"

The **Open** dialog box will appear on screen.

- Write down the file name "Flower" in the **File name** box or select the desired file "Flower" from the list by simpls clicking on it. Then click on **Open** button.



You will find the picture of the flower you have already drawn. Let us give a suitable caption to the picture with the help of text tool.say, **Flower**.

- Click on the **File** menu.
- Click on **Save** option for saving the current editing.

Remember when you have to save a new file for the first time you should use either **Save As** or **Save** option, whereas when you save an existing file you have to use the **Save** option.

- Click on the **Exit** option to quit from the painbrush application

Do it yourself

A. Draw the picture of a computer.
B. Save this picture in a file called "Computer".
C. Exit from the Paint application.
D. Open the existing file "Computer" and give a caption "My Computer" to your picture.

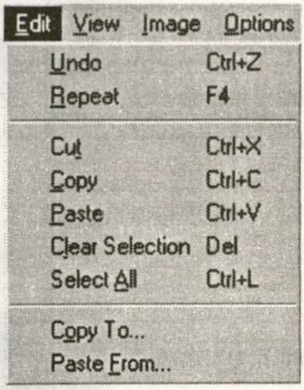
5.5 Edit menu

Edit menu offers several options such as **Undo, Repeat , Cut, Copy , Paste, Clear Selection , Select All Copy To,Paste From** etc.

We have already learnt to select pictures or texts in the previous classes through **Select tool** or **Free- Form select** tool available with the toolbox.In this class you will learn about the various options available in the **Edit** menu in details with the help of examples.

We have already drawn the picture of a **flower**. Later we may want to repeat the same picture without drawing it again.

The **Paint** application provides facility of copying, pasting, moving, deleting pictures through various options available in **Edit** menu.



Options available in Edit menu

To undertake these various operations let us learn about **Edit** menu by solving another problem.

Class Work Problem-3

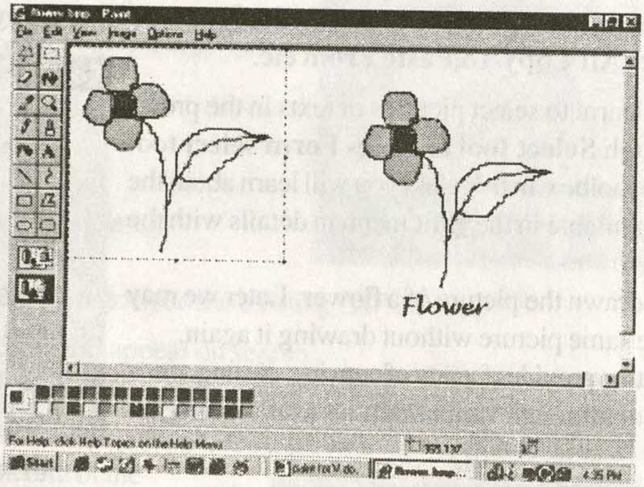
- Copy the picture of the flower. (You have already drawn the flower while solving Problem 1)
- Paste it beside the existing flower.

Solution

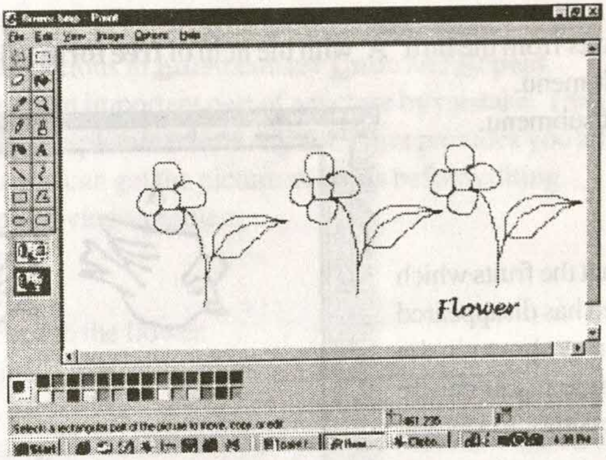
- Open the file saved as "FLOWER" from paint application.
- Select the picture of the flower with **Select** tool. (You have already learnt to **select** a picture or part of it in previous classes through **Select** tool and **Free form select** tool.)
- Click on **Edit** menu.

☺Click on **Copy** option to copy the picture of the flower on your clipboard.
(We can also press Ctrl key + C simultaneously for the same effect.)
☺Click on **Paste** option. (Alternatively you can press Ctrl key + V simultaneously for the same effect.)

You will see a duplicate of the flower you had drawn earlier appears on the top left corner of the screen as shown in the given figure. Thus we find that with the help of **Copy** and **Paste** options we can repeat any text or picture or part of a text or picture as many times as we want.


Paint
File Edit View Image Options Help
Flower
For Help, click Help Topics on the Help Menu.
Start
4:35 PM

In fact with the help of **Copy** and **Paste** option we can repeatedly copy texts or pictures as many times as we want at different positions of the screen. This is achieved by dragging the pasted picture at the desired position and then releasing the mouse at the point. You will notice that once the picture is dragged and removed from the topmost left corner to the desired position you have to paste it again to use the same picture. In the figure shown below we have pasted the figure two times from the original flower.



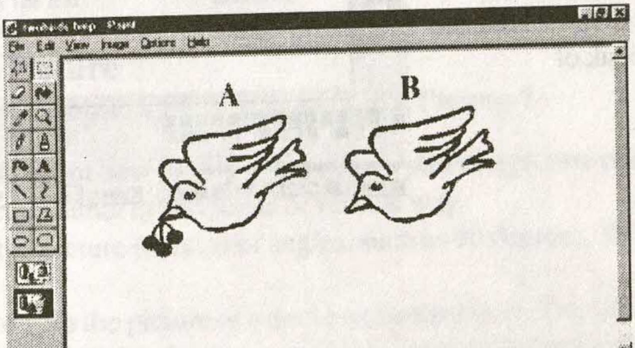
Selects a rectangular part of the picture to move, copy, or edit.

So far we have been copying and pasting a total picture.
Just as in **Delete** command we can delete part of a picture or text, similarly we can copy and move part of a picture or text or whole picture or text through **Cut** command and **Paste** command.

Let us learn the utility of **Cut** and **Paste** command by solving a problem.

Problem

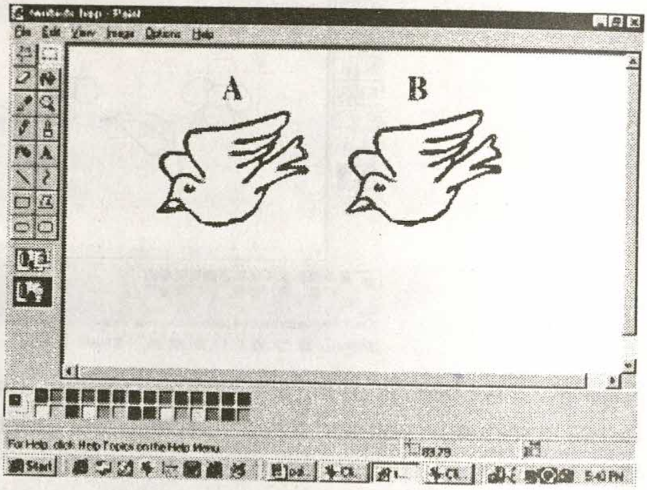
We can see in the given figure that there are two birds 'A' and 'B', You will notice that the Bird 'A' is holding fruits in its beak.
Let us try to move those fruits from the beak of bird 'A' to the beak of bird 'B'.



For Help, click Help Topics on the Help Menu.

Solution

☺Select the fruits from the bird 'A' with the help of **free form select** tool.
☺Click on **Edit** menu.
☺Click on **Cut** submenu.

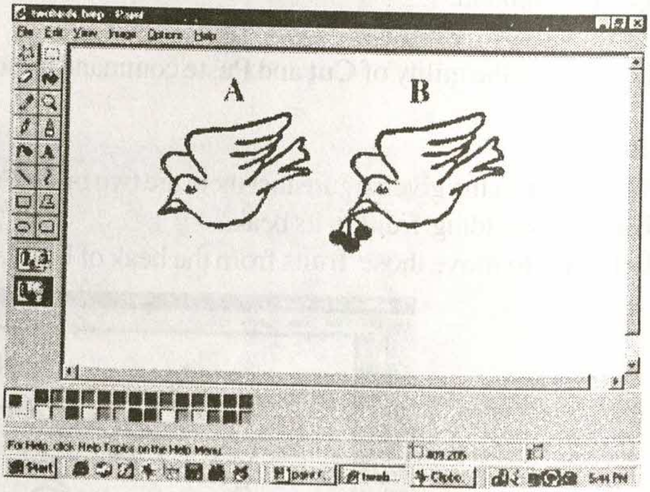

File Edit View Image Options Help
A
B
For Help, click Help Topics on the Help Menu.
Start

You will find that the fruits which you had selected has disappeared from the screen as shown in the picture. The same result can be achieved by pressing Ctrl key and X key together.

☺ Click on **Edit** menu.
☺ Click on **Paste** command.

The fruits will immediately reappear on left most corner of the screen.

The same result can be achieved by pressing Ctrl key and the V key together.


File Edit View Image Options Help
A
B
For Help, click Help Topics on the Help Menu.
Start

☺Drag the flowers from the top-left corner of the screen and place it at the beak of the bird 'B'.

Wow! you have done it.

Another two interesting options in **Edit** menu are **Undo** and **Repeat**.

Suppose you have erased an important part of a picture by mistake. Then what will you do? Will you again draw the picture? Certainly not. Paint provides you a facility to undo your last action so that you can get the picture as it was before editing.

Let us try this feature by solving a problem.

Class Work Problem-4

☺Open the file 'flower'.

☺Delete the leaf attached to the flower.

☺Bring the leaf back in its original position.

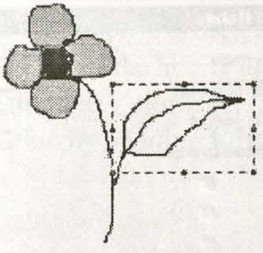
Solution

After opening the existing file named 'Flower' you should follow the steps given below.

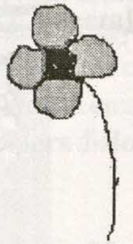
☺Select the leaf attached to the flower with the help of **Freeform select** tool.

☺Click on **Clear Selection** under **Edit** menu.

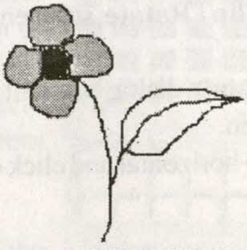
☺Click on **Undo** option under **Edit** menu.



Selection of the leaf
with Freeform select tool



Effect of
Clear Selection



Effect of **Undo**
option

5.6 Rotating a Picture

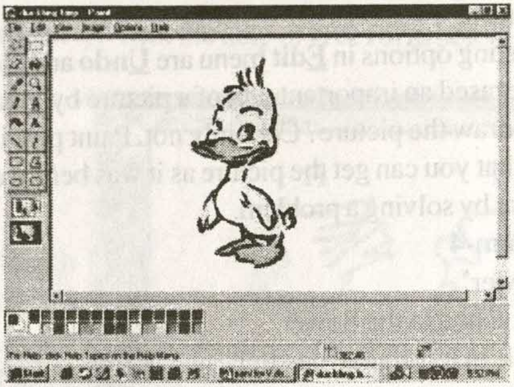
Now let us see how to rotate a Picture or part of a Picture ?

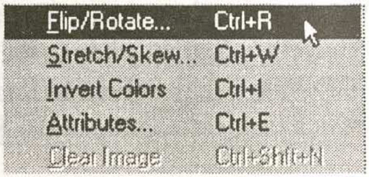
Now we will discuss about how to **Flip** a picture or a part of a picture or text.

We can **Flip** the picture either in horizontal or vertical way.

We can also rotate the picture in terms of angles, such as 90 degrees, 180 degrees, and 270 degrees,

Suppose, we want to **Flip** the picture of a duckling horizontally. The literal meaning of "Flip" means Turn over or Spin. Suppose you draw a picture facing the right side of the screen, as soon as you flip it horizontally, it would on the left side of the screen. You will notice in the given figure the duckling is looking on the left side of the screen.

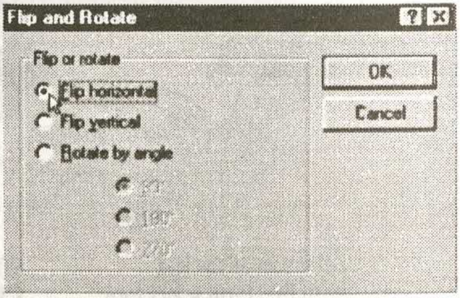




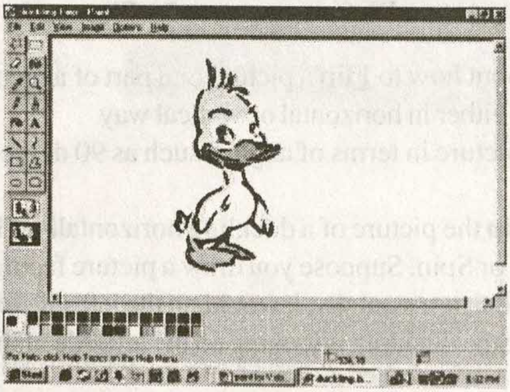
- ☺Open the Paint application.
- ☺Draw the picture of duckling.
- ☺Save the picture in a file with a name "**duckling**"
- ☺Select the picture of the duckling with the help of select tool.
- ☺Click on **Flip / Rotate** submenu from **Image** menu.

The **Flip / Rotate** dialog box will appear on your screen.

- ☺Select **Flip** horizontal and click on **OK**.



Immediately the figure of the Duckling will face on the right side of the screen.



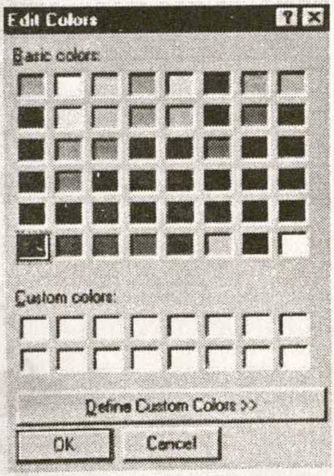
Do it yourself

a) Open the file "duckling".
b) Then flip the picture of duckling vertically and see the effect.

5.7 Pick tool

In the previous classes we have already discussed about various tools viz. **Select**, **Free-form select**, **Pencil**, **Eraser/color eraser**, **fill color** etc. available in **Paint**. In this class we will discuss about a very interesting painting tool called **Pick** tool available with Paint application.

When you initially work with **Paint** you will notice that the colors available in the **color palette** are normally primary in nature. A painter should have more options to select an exact color to obtain a specific effect. Interestingly the user of Paint application has the liberty to modify the colors of the color palette through **Colors** menu. We can create colors in Paint application by opening **Edit colors** dialog box from **Colors** menu.



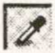
Once a color is created and used in a specific area of the screen ; if the user wants to use the same color elsewhere he need not go back to the color palette again, instead he has the option of picking and using it with the help of Pick tool. The example given below will give substantial clarification.

Problem-5

☺Copy the colour of the beak of the duckling.
☺Fill the legs of duckling with the same colour.

Solution

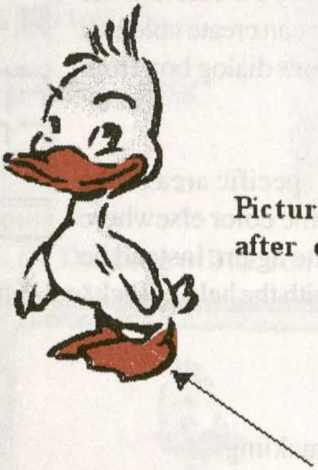
☺Open the file '**Duckling.bmp**'.
☺Click on **Pick** tool. The tool will be activated. On the **Paint** work area the mouse pointer will take the shape of a dropper.


Pick tool

Mouse pointer after activiting Pick tool

- Click on the beak of the duckling in the picture. You will notice that the foreground color will change to that of beak of the duckling.
- Click on the **Fill with Color** tool.
- Click on the legs of the duckling. The colour of the legs will change to that of the beak.

Picture of Duckling before coloring its legs


Picture of Duckling after coloring its legs

Colour of the legs is changed

Do it yourself

1. Colour one petal of the flowers in the 'Flower' file.
2. Copy that colour to other petals.

Chapter : 6
Working with WordPad

We will learn about

- ☺ **Introduction**
- ☺ **Why do we use Wordpad Application**
- ☺ **Writing text in WordPad Application**
- ☺ **Saving a document**
- ☺ **Exiting from WordPad Application**
- ☺ **Opening a document**
- ☺ **Printing a document**
- ☺ **Copy and Paste feature**
- ☺ **Inserting current date in a document**
- ☺ **Application of Font,Font Style, Font Size**

6.1 Introduction

Word Pad is a word processing package that comes with Windows Operating System which is available under **Accessories** section of the **Programs** menu.

6.2 Why do we use WordPad Application

- ☺ We can use WordPad for creating letters, simple reports, and other basic documents.
- ☺ We can avail the facility of using various size and style of text writing, through this package.
- ☺ Word Pad has another special feature of Word Wrapping. While we type, after our text fills up one complete line on the screen, the next character automatically drops down to the next line without any effort from our end to create a new line. This feature is known as the **Word Wrap** feature.

6.3 Writing Text in WordPad Application

Let us learn how to key in a text in a WordPad application.

Say, you want to write a letter to your best friend about your Winter holidays.

First of all you have to open the Word Pad application.

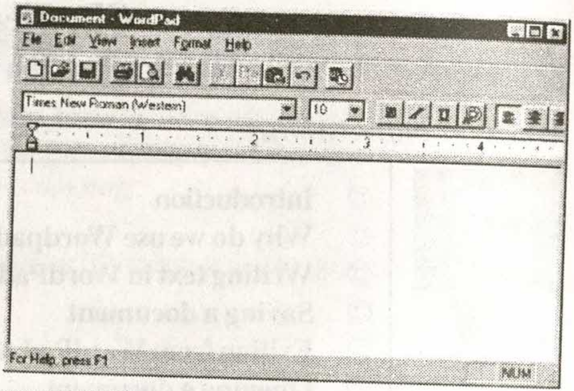
- ☺ Click on Programs | Accessories | WordPad

You will find a white blank screen appear on the screen. You will also find the cursor i.e a blinking vertical line on the screen waiting for the user to key in the text.

As soon as you start typing, you will find the cursor is moving with your last keyed in letter.

..........➡

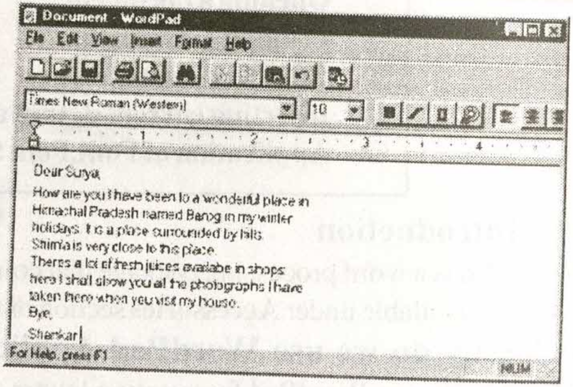
6.4 Saving a document



After you have completed typing the desired text, you must save your file for later use.

To save a file, you have to use the menus. In WordPad application, you will find several menus like **File**, **Edit**, **View**, **Insert**, **Format** and **Help** for performing various tasks.

To activate the menu, you have to click on the desired menu.

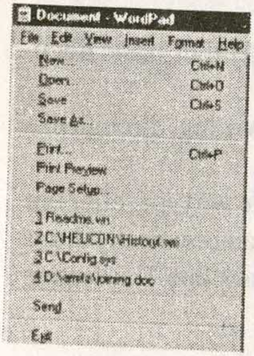


Dear Surya,
How are you I have been to a wonderful place in
Himachal Pradesh named Barog in my winter
holidays. It is a place surrounded by hills.
Shimla is very close to this place.
Theres a lot of fresh juices available in shops
here I shall show you all the photographs I have
taken there when you visit my house.
Bye,
Shankar

For saving a file you have to click on **File** menu. You will find **File** menu will open in the form of a drop down list.

There are several menu commands available under **File** menu.

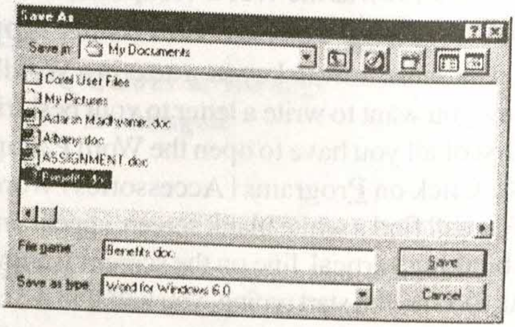
☺Click on **Save** option.



The **Save As** box will appear on the screen.

There are several small boxes and options available in this **Save As** box.

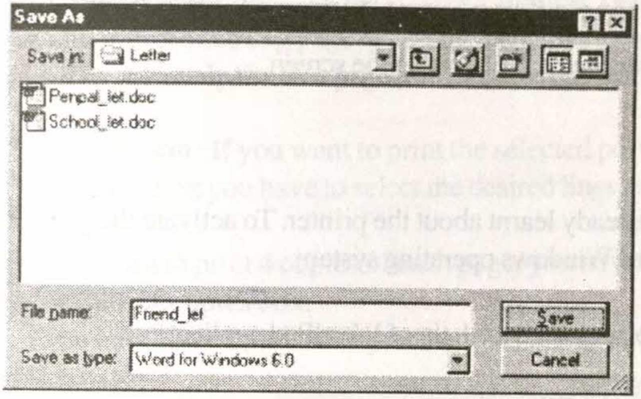
You have already learnt the concept of folder. Now, say you want to save your desired file in an appropriate folder, let us name it as, **Letter** since you are writing a letter to your friend.



File name: Benefits.doc

Save as type: Word for Windows 6.0

It is a good practice to put the appropriate file in the appropriate folder. Later, you will be able to find your file very easily. Say, you may create a folder named **"Letter"** and keep files like **Friend_let, School_let, Penpal_let** within it.



File name: Friend_let

Save as type: Word for Windows 6.0

☺Now to select the desired folder, you have to click anywhere in Save **i**n box. You will find different drives and folders will appear in drop down manner. Select the desired drives or folder by double clicking on it.

☺To give a name to your file, you have to click on File **n**ame box. Type the name of the file say, **Friend_let** . Your file will automatically take an extension **.doc** as soon as you save it.

☺Click on **Save** Button.

So your file is saved in disk with a name **Friend_let** under "Letter" directory.

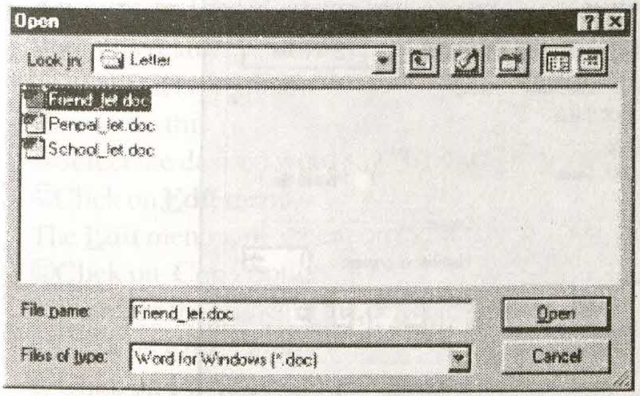
6.5 Exiting from WordPad aplication

☺After saving the file, you may want to exit from the WordPad application. To Exit from the WordPad application click on **Exit** menu option under **F**ile menu.

6.6 Opening a document

Now, you may want to modify your file Friend_let.doc.To modify the file, first of all you have to open the file.

☺To open a file you have to click on **Open** menu option under **File** menu.



File name: Friend_let.doc

Files of type: Word for Windows (*.doc)

You will find **Open** box appear on the screen.

☺ Click on **Look in** box to find out your desired folder, say Letter.

Type in the name of the desired file or select the desired file from the list, say, Friend_let.doc.

☺Click on **Open** button.

You will find the the contents of your file is displayed on the screen.

6.7 Printing a Document

In the previous chapter, you have already learnt about the printer. To activate the printer you must use application software of Windows operating system.

In this chapter we will learn how to print with the help of WordPad applicatin.

☺Click on **Print** menu command under **File** menu.

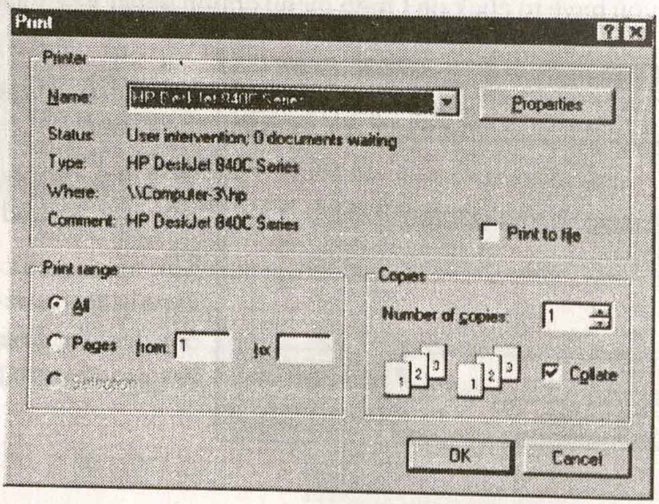
You will find **Print** Dialog box will appear on the screen.

In the Print box you will find several options for different purposes.

☺ In the **Name** option you have to select the printer which is attached to your computer.

In the **Print range** option, you will find three sub options.

(i) All : If you want to print all the pages of your currently active document , you have to select the **All** option.



Name: HP DeskJet 840C Series
Status: User intervention; 0 documents waiting
Type: HP DeskJet 840C Series
Where: \\Computer-3\hp
Comment: HP DeskJet 840C Series
☐ Print to file
● All
○ Pages from: 1 to:
○ Selection
Number of copies: 1
☑ Collate

(ii) **Pages from** ☐ **to** ☐ : In these two boxes we have to input the page numbers from starting page to ending page say from 1 to 10, or from 3 to 8. In case you want to print only the first page you have to type from1 to 1.

(iii) **Selection** : If you want to print the selected portion of the current page say, first 7 lines, then first you have to select the desired lines and choose the **Selection** option.

If you want to print 4 copies of each page, you have to use **Copies** option. Type in 4 in **Number of copies** box.

If you have not mentioned any number in **Number of copies** box, it will print 1 copy of each page.

☺After selecting the desired option, you have to click on **OK** button.

Now we will discuss about some important features of WordPad.

6.8 Copy and Paste feature

Say, you have written the following lines about the marvellous game of cricket.

Cricket is the master of all games.

Cricket was initially played only in England and later it beacme popular in other parts of the world.

Till date Cricket is not played in USA.

You must have noticed that you are using the word " Cricket" several times by typing it repeatedly.

To avoid writing the word "cricket" repeatedly you can use the **Copy Paste** option available with the Word Pad application and in turn save a lot of time and energy.

With this feature we can copy the word " Cricket" for once and paste it as many times whenever it is required.

How to do this ?

☺Select the desired word say "Cricket" that you want to copy in other locations.

☺Click on **Edit** menu.

The **Edit** menu will appear on the screen in drop -down manner.

☺Click on **Copy** option.

Then place the cursor in the desired position.

☺Click on **Edit** menu.

☺Click on **Paste** option.

You will find the word "Cricket " appears on the screen in flash of a second.

How to do this ?

☺Select the desired word say "Cricket" that you want to copy in other locations

☺Click on **Edit** menu.

The **Edit** menu will appear on the screen in drop -down manner.

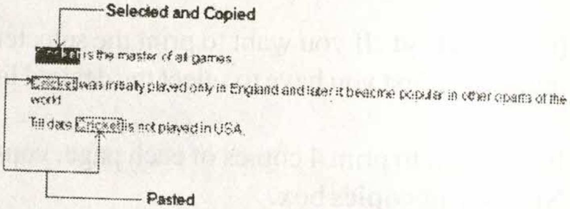
☺Click on **Copy** option.

Then place the cursor in the desired position.

☺Click on **Edit** menu.

☺Click on **Paste** option.

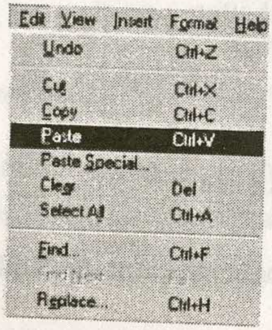
You will find the word "Cricket " appears on the screen in flash of a second.

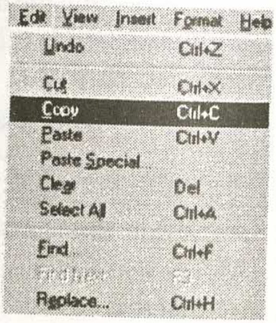


Cricket is the master of all games

Cricket was initially played only in England and later it beacme popular in other parts of the world

Till date Cricket is not played in USA.

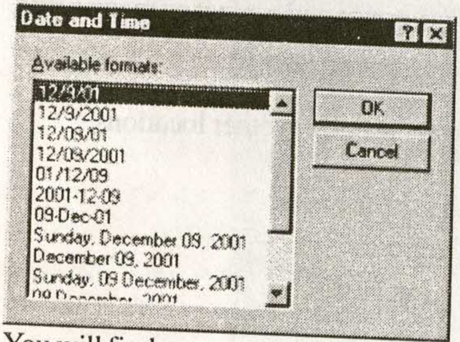




6.9 Inserting current date in a document

While writing a letter, you may want to insert the current date in your document. This can be very easily done by special feature of Word Pad applications.

How to do this ?



☺ Place the cursor in the desired position where you want to insert the current date.

☺ Click on **Insert.**

☺ Click on **Date and Time.**

You will find several formats of current date appears on the screen.

☺ Select the desired format.

☺ Click on **OK** button.

You will find current date is inserted in the desired position.

6.10 Application of Font,Font Style and Font Size

You must have seen whenever you receive letters and messages ,they often use different styles and sizes of texts to indicate its importance and also adds an impressive look to a document.

With the help of Word Pad Application we can give a different look to our document may it be a letter or a simple greetings message.
Let us understand this in a simple way.
Dear Subho
Get Well Soon !
Bye,
Sandy
The same text can be written in a different format.

Dear Subho

Get Well Soon !

Sandy

You just saw that in order to create an interesting presentation of a text matter you may like to change your writing style and also change the size of the characters of the text.
Thus with the help of WordPad we can change the writing style as well as the size of text.
The diffrent writing styles available are known as "Font".
So, we can change the font, as well as the font size.
Let us see how the impact of a writing style differs by changing the font and its size.

Happy computing!

Font name : Pooh Font size: 14

Happy computing!

Font name : Lucida Handwriting Font size: 24

Happy computing!

Font name : Impact Font size: 30

How to do this?

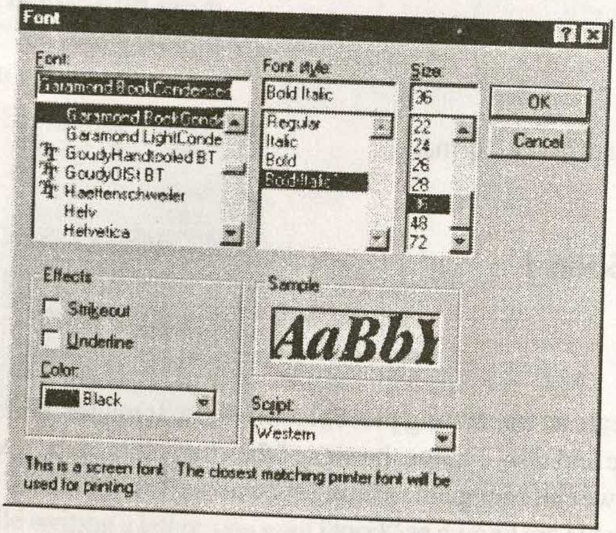
☺ Type in disired text.

☺ Select the Text

☺ Click on **Format**.

☺ Click on **Font.**

You will find Font dialog box appears on the screen.



Font: Garamond BookCondensed

Font style: Bold Italic

Size: 36

Color: Black

Script: Western

This is a screen font. The closest matching printer font will be used for printing.

☺ Select the desired font from **Font** option by clicking on it.

☺ Select the desired Font style from **Font style** option by clicking on it.

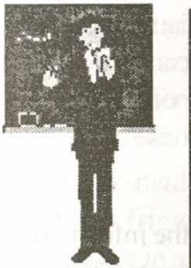
☺ Select the desired Font Size from **Size** option.

☺ Click on **OK.**

You will find your text appears on the screen in a grand style.

Chapter :7
Familiarizing with Internet

We will learn about



- ☺ **The Computer World**
- ☺ **Networks**
- ☺ **The Information Superhighway**
- ☺ **Connecting to the Internet**
- ☺ **Introduction to E-mail**
- ☺ **Advantages of Email**
- ☺ **Attaching files to an Email**

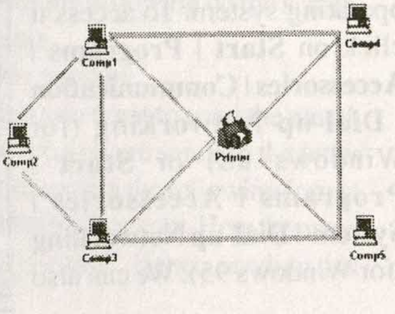
7.1 The Computer World

We have all learnt about the things that our computer can do. We can make the computer do all those things that we can dream of. We can make the computer sing, play, show cartoons, see the world through the internet, send mails, play games with our computer. In this chapter, we will learn some of the most interesting things that we can do with the computer. First we will learn how to use the computer as a tool for communications.

You have all heard of the Internet. The Internet consists of millions of computers connected together. You can use the Internet to get information on any subject. You can also use the Internet to send messages to your friends or relatives all round the world using email. Before we understand what is the Internet and how we can use it, let us learn some more things about Networks.

7.2 Networks

When more than one computer is connected to each other along with other devices like printers, modems etc., for sharing information, we call it a Network. There are different types of Networks like **LAN** (Local Area Network), **MAN** (Metropolitan Area Network) or **WAN** (Wide Area Network) prevelant today.



A network can also consist of other networks. These complex networks are spread over a large area, sometimes even countries. One such type of network is called the Internet, or the network of networks.

7.3 The Information Superhighway

The Internet is also called the information superhighway. It is so called because it contains large amounts of information on different subjects and this information can be accessed very fast. The information superhighway of the Internet consists primarily of three things, (i) millions of computer connected together, (ii) information - stored in these computers (iii) people - trying to access this information.

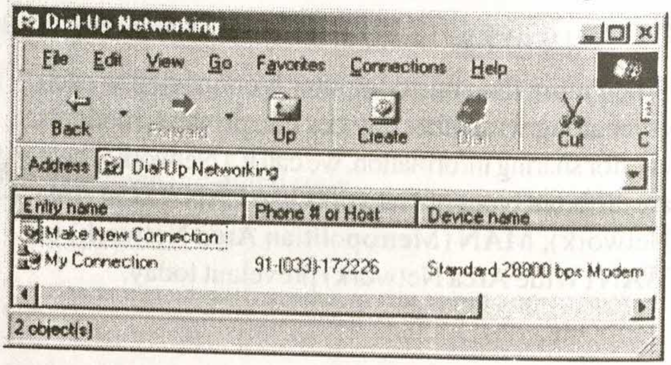
You can also get any information you need from the Internet. To get into the information superhighway, you need to connect to the Internet with your personal computer. You will also require a special device called the "**modem**" (**mo**dulator/**dem**odulator) to connect your computer to the Internet. The modem is a device that is connected to the telephone line on one end and your computer at the other.

What does a modem do?

A modem converts information from our computer (in the digital form) to electrical signals for the telephone (in analog form) and vice-versa. This enables us to exchange information with the help of the modem. We will need to avail an Internet account from an **ISP** or **Internet Service Provider**. This is like taking a cable TV connection from the cable operator of your area. You pay him a monthly rental for accessing the cable channels. Similarly, we pay the ISP for the hours we want to access the Internet.

7.4 Connecting to the Internet

To connect to the Internet, we need a special software called **Dial-up Networking**. This comes with the Windows operating system. To access it click on **Start | Programs | Accessories | Communication | Dial-up Networking** (for Windows 98) or **Start | Programs | Accessories | System | Dial-up Networking** (for Windows 95). We can also



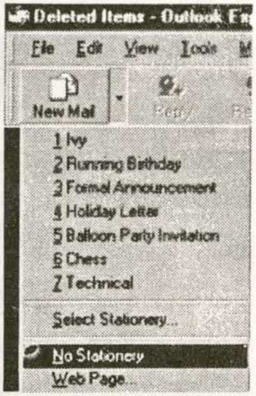
Entry name	Phone # or Host	Device name
Make New Connection		
My Connection	91-(033)-172226	Standard 28800 bps Modem

access it by double clicking on the "My Computer" icon on the Desktop.

You will find the following screen, on your display unit.

You can double click on one of the connections, to connect. After the computer dials the telephone number of the ISP, and connects, you will see another window called the **Post-Dialup Terminal Window.** Here you enter your username and password. A username is a unique name given to a user of a particular network, and the password is a secret word or phrase that confirms that the user is acutally a genuine one. After the password is verified, the user is granted access to the network, in your case the Internet.

7.5 Introduction to E-Mail



The word "e-mail" is short form of "electronic mail". When we send a letter to a friend or a relative, we write our letter in a piece of paper and put in an envelope and drop it in a letter box. This letter is then collected by the postman and taken to the head post office to reach it to its desired destination.

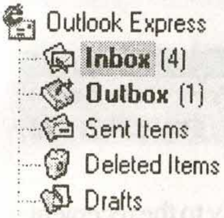
Similary, using the computer to send mails or letters to someone is called e-mail. To send an e-mail, we can use programs like "Outlook Express", "Eudora" or "Netscape Messenger" These type of applications are called "Email Clients". We also need an internet connection from an Internet Service Provider..

Let us try to send an e-mail.

- Select the **Outlook Express** icon on the Desktop.
- Double click it to start the program. Then click on **File | New | Mail Message** or Click on **New Mail Icon | No Stationery**.

If we want to send a mail that contains decorations (like cards) we can choose a style from the drop-down list to use that style. But, we usually use the "No Stationary" option.

After clicking on the "No Stationery" option, we see the following on the screen. This will allow us to create and send email messages.

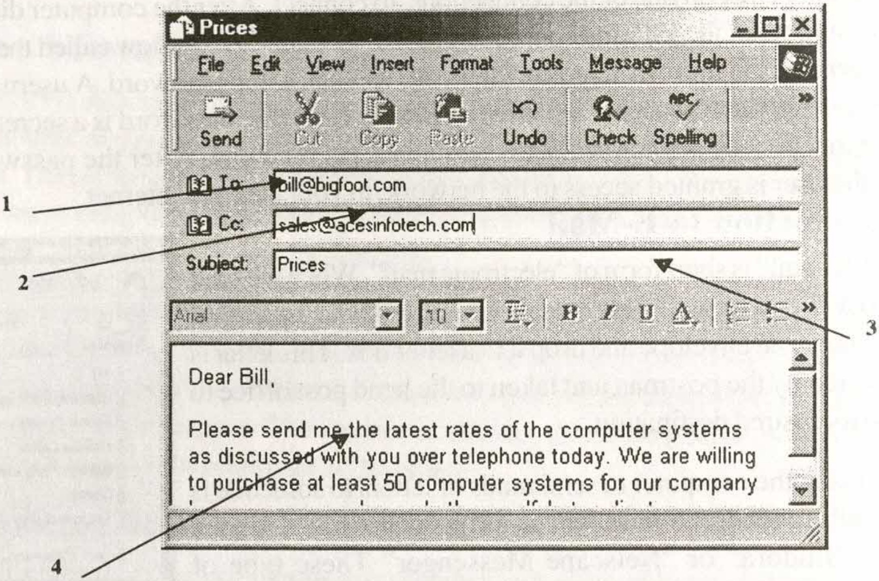


Now let us see the different parts of this window.

(1) Type the email address of the person you want to send the email. This is the same as the name of the person you are sending the letter by ordinary postal service. The email address is in the following format "name@domainname". For example bill@bigfoot.com. Here the name of the user of the domain "bigfoot.com" is "bill". Hence, sending this

.................►

mail will reach the mailbox of "bill" in the "bigfoot" domain. We will learn more about this later in the chapter.



To: bill@bigfoot.com
Cc: sales@acesinfotech.com
Subject: Prices

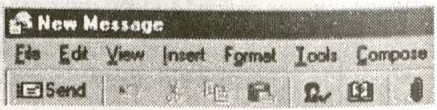
Dear Bill,

Please send me the latest rates of the computer systems as discussed with you over telephone today. We are willing to purchase at least 50 computer systems for our company

(2) This is the place where you type in the address of the other recipeints. This is also called "Courtesy copy". It means, that the contents of the letter also the reach the name of the receipeints mentioned here other than the original destination. For example, in a company, an email might be sent to a person of one department with the copy of it to the head of the same department for his necessary information.

(3) This is the place where you type the subject of the email. The subject easily identifies an email and helps the user to read the imporant mails first.

(4) This is the place where you type in the message.



After you have finished typing the message, you need to click on the "Send" button to send the message. You can also click on **File | Send Message** to send the message.

If you are connected to the Internet, then the message is sent instantaneously to the recepient.

In case, you are offline (not connected) then the message is stored in the Outbox. The next time we connect to the Internet, the mail is sent to the desired address. See the picture on the left.

Suppose you want to send more than one email. First you compose (type in) all the emails one by one. Then, you click on the "Send" button for each message. All the mails are stored in the Outbox. The next time you connect to the Internet and click on the Send/ Receive button all the mails are sent from the Outbox.

Outbox, are moved to the "Sent Items" folder after they are sent. You will notice that some numbers are present in brackets beside the Outbox and the Inbox folders. This indicates the number of mails in the respective mail folders.

When you receive mails, these mails are stored in the "Inbox". As the name suggests, it means data that comes 'in' is stored in the Inbox and any mail that will go from your computer is stored in the "Outbox". When we delete mails the mails are stored in the "Deleted Items" folder.

The 'Drafts' folder contains all those messages that are not yet completed. While composing a message, we may not finish the mail for some reason, we save the mail in the drafts folder. Later we can resume with the same mail and complete it.

7.6 Advantages of Email

1. Email is fast, easy and affordable means of communication.

2. We can reply to more than one email at the same time without having to pay for the extra mails.

3. We can also send pictures, sounds and other files through emails (called attachments) that cannot be send through ordinary mail.

Attachments : An attachment is a file (of any type) that is sent across along with an email message. The attachment may or may not have any relation with the email. We can send more than one attachment with one e-mail.

7.7 Why do we need to attach a file?

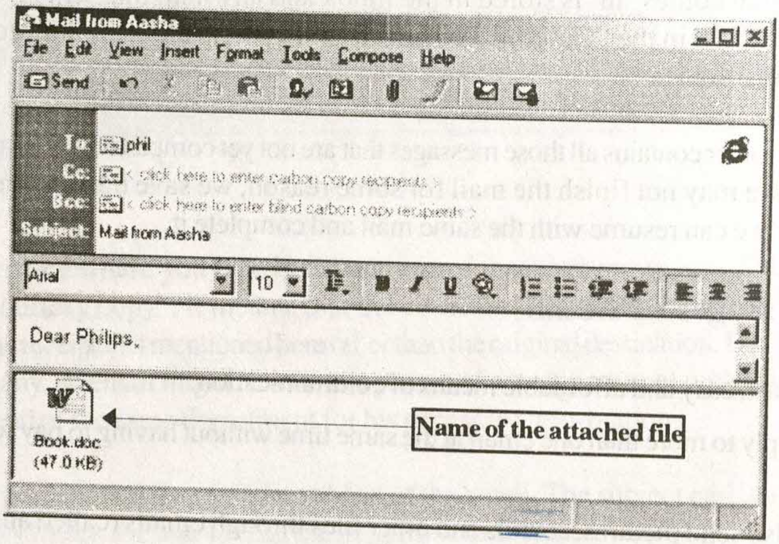
Suppose you have created a message in WordPad for the new year called "Happy New Year.doc". Now you want to send this message to all your friends. If you want to send it more than one friend, you can attach the file to a message and send the message to all your friends. This way, you need not create a file separately for each friend.

You can also send pictures, sound (music) and other types of files as attachments with an email.

How to attach a file to your email from Outlook Express?

Click on the **File | New Message** to open the New Message Window. Click on the **'clip' icon** (the last icon on the right in the picture). Select the file or files you want to attach from the folder and click on the Attach button.

You will see the following on the screen.



To: phil

Cc: < click here to enter carbon copy recipients >

Bcc: < click here to enter blind carbon copy recipients >

Subject: Mail from Aasha

Dear Philips,

Book.doc (47.0 KB)

Name of the attached file

You will see the name of the file you attached with the email, in a separate box, below your mail message. This indicates that you have an attachment with the email.

When you send this mail, the attachment is also sent automatically to the desired destination, along with the email. Isn't it the most convenient way to send pictures and greetings to your friends during festivals.

Library

Other Computer Titles of Interest

SCHOOL COMPUTER TEXT BOOKS

Computer Horizons Book 1	**S. Addy**
Computer Horizons Book 2	**S. Addy**
Computer Horizons Book 3	**S. Addy**
Computer Horizons Book 4	**S. Addy**
Computer Horizons Book 5	**S. Addy**
Computer Horizons Book 6	**S. Addy**
Computer Horizons Book 7	**S. Addy**
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Computer Horizons Book 9	**S. Addy**
Computer Horizons Book 10	**S. Addy**

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